











FASTI TEMPORIS CATHOLICI

AND

ORIGINES KALENDARIE.

BY

EDWARD GRESWELL, B. D.

FELLOW OF CORPUS CHRISTI COLLEGE, OXFORD.

---

IN FOUR VOLUMES.

---

VOLUME III.

---

OXFORD:

AT THE UNIVERSITY PRESS:

M.DCCC.LII.



5332  
59/9/05  
8



# FASTI CATHOLICI.

## DISSERTATION XIV.

*On the Sothiacal or Canicular period of the Egyptians.*

### CHAPTER I.

SECTION I.—*On the respect paid to the Nile in Egypt.*

THE Nile was the source of so many advantages to the Egyptians, that no one could consider it extraordinary did it appear that from time immemorial this river had even been deified among them, and treated with divine honour and respect. And this indeed turns out to be the case. It is literally true of this river that it was to the Egyptians what Jupiter was to the Greeks :

Αἰγύπτιε Ζεῦ Νεῖλε<sup>a</sup> :

the principal, if not the sole, object of the national worship. The Egyptians passed with the ancients for the oldest of the human race, the creatures or αὐτόχθονες of the country which they inhabited ; and yet this country itself was believed to have been the production and gift of the Nile. Οὗς γάρ φαμεν ἀρχαιοτάτους εἶναι τῶν ἀνθρώπων Αἰγυπτίους, τούτων ἡ χώρα πᾶσα γεγονυῖα φαίνεται καὶ οὔσα τοῦ ποταμοῦ ἔργον<sup>b</sup>. To the Nile in the opinion of antiquity Egypt was supposed to owe not only its facilities of subsistence, its immunity from dearth and famine, rarely known to fail, its wealth and abundance, and its populousness ; but its exemption from

<sup>a</sup> Parmeno Byzantinus, Apud Athenæum, v. 36.

<sup>b</sup> Aristotle, Meteorologica, i. 14.

Opp. i. 352. l. 20. Cf. Herodotus, ii. 2. 5. Apollonius Rhod. iv. 261-271, and the Scholia in loc.

pestilence, deluges, earthquakes, and from other physical evils: whereby its lot appeared to be singularly contrasted with that of less fortunate countries. 'Ὡς δὲ καὶ σεισμοῖς καὶ λοιμοῖς καὶ τοῖς ἐξ οὐρανοῦ κατακλυσμοῖς ἀνάλωτος ἡ χώρα δι' αὐτοῦ ἐστὶν οὐδὲ τοὺς πρὸ ἡμῶν Ἑλληνας ἔλαθεν<sup>c</sup>—Καθέστηκε δ' ἀντὶ μιᾶς πηγῆς ἀπάσῃ τῇ γῇ<sup>d</sup>.

The key to the meaning of most of the symbolical rites and ceremonies of the national religion, according to the best informed on such subjects among the ancients, was to be discovered in the respect and veneration so naturally paid to this river, as the one great benefactor of Egypt, as the guardian genius of the country: Ἄ δὲ καὶ Αἰγύπτιοι συνεωρακότες οἶμαι μειζόνως ἄγουσι τὰ κατ' αὐτόν· ὥστ' ἔγωγέ ποτε ἤκουσα καὶ ἄλλων τῶν τι δοκούντων εἶδέναι περὶ ταῦτα, ὅτι καὶ τῶν νομίμων τῶν περὶ τὰς ἐορτὰς καὶ θυσίας εἰς τὸν Νεῖλον αὐτοῖς ἀνήκει τὰ πλεῖστα<sup>e</sup>. There was at least, according to Heliodorus, one festival in Egypt called in Greek after the name of the river Nilos, and annually celebrated at the summer solstice, which he represents as the greatest in the Egyptian calendar<sup>f</sup>. And this seems to be intended on the monuments and on the sculptures still extant, by what is there described and designated as the solemn assemblies (*panegyries*) of the waters<sup>g</sup>.

The first idea of the two principal divinities of Egypt, Osiris and Isis, (between whom, as the respective types of the active and of the passive principle in the work and process of universal production, Egyptian mythology established the closest connection,) might be supposed to have been derived from the annual action of the Nile on the natural susceptibilities of the soil of Egypt. Τῆς γὰρ χώρας οὐχ ὑετῷ καθάπερ αἱ ἄλλαι νειφομένης, ἀλλὰ ταῖς τοῦ ποταμοῦ πλημμύραις εἰωθυίας ἀνὰ πᾶν ἔτος λιμνάζεσθαι, θεοπλαστοῦσι τῷ λόγῳ τὸν Νεῖλον Αἰγύπτιοι, ὡς ἀντίμιμον οὐρανοῦ γεγονότα, καὶ περὶ τῆς χώρας σεμνηγοροῦσιν<sup>h</sup>—Θεοπλαστοῦσι τὸν Νεῖλον Αἰγύπτιοι, καὶ κρειτ-

<sup>c</sup> Aristides, Oratio xlvi. 490. 14.

<sup>d</sup> Ibid. 486. 15.

<sup>e</sup> Ibid. 489. 16. Cf. Maximus Tyrius, Diss. viii. 1. p. 79.

<sup>f</sup> Heliodorus, *Æthiopica*, ix. 9, 10: 22.

Heliodorus however was the author of nothing more than a romance or novel; and we very much doubt whether there

was really any such festival in his time, or even before his time, as the feast of the Nilos at the solstice.

<sup>g</sup> Egyptian Antiquities in the British Museum.

<sup>h</sup> Philo Judæus, *De Mose*, iii: Opp. ii. 164. 41.



τόνων τὸν μέγιστον ἄγονσιν, ἀντίμιμον οὐρανοῦ τὸν ποταμὸν σεμνηγοροῦντες, οἷα δὴ δίχα νεφώσεων καὶ ὑετῶν ἀερίων τὴν ἀρουμένην αὐτοῖς ἄρδοντος, καὶ εἰς ἔτος ἀεὶ τεταγμένως ἐπομβρίζοντος. καὶ ταύτῃ μὲν ὁ πολὺς λεώς. ἃ δὲ ἐκθειάζουσιν ἐκεῖνα. τοῦ εἶναι καὶ ζῆν ἀνθρώποις τὴν ὑγρὰς τε καὶ ξηρὰς οὐσίας σύνοδον αἰτίαν μάλιστα νομίζουσι· τὰ δ' ἄλλα στοιχεῖα τούτοις συνυπάρχειν τε καὶ συναναφαίνεσθαι λέγοντες· καὶ τὴν μὲν ὑγρὰν τὸν Νεῖλον θάτέραν δὲ τὴν γῆν τὴν αὐτῶν ἐμφαίνειν. καὶ ταυτὶ μὲν δημοσιεύουσι. πρὸς δὲ τοὺς μυστὰς Ἰσιν τὴν γῆν καὶ Ὅσιριν τὸν Νεῖλον καταγγέλλουσι, τὰ πράγματα τοῖς ὀνόμασι μεταλαμβάνοντες. ποθεῖ γοῦν ἀπόντα ἢ θεὸς καὶ χαίρει συνόντι καὶ μὴ φαινόμενον αὐθις θρηνεῖ, καὶ ὡς δὴ τινα πολέμιον τὸν Τυφῶνα ἐχθραίνει·—Τῆς δὲ οὐρανίας γῆς καὶ τῆς χθονίας τὴν δύναμιν Ἰσιν προσεΐπον . . . οὐρανίαν δὲ τὴν σελήνην, χθονίαν δὲ τὴν καρποφόρον ἐν ἣ κατοικοῦμεν, λέγουσι. τὸ δὲ αὐτὸ δύναται Δημήτηρ παρ' Ἑλλήσι... καὶ Διόνυσος καὶ Ἰσις καὶ Ὅσιρις παρ' Αἰγυπτίοις· αὕτη δὲ (ἡ) τρέφουσα καὶ αἴρουσα τὰ ἐπὶ γῆς· ὁ δὲ Ὅσιρις παρ' Αἰγυπτίοις τὴν κάρπιμον παρίσθησι δύναμιν, ἣν θρήνοις ἀπομειλίσσεσθαι εἰς γῆν ἀφανιζομένην ἐν τῷ σπόρῳ, καὶ ὑφ' ἡμῶν καταναλισκομένην εἰς τρόφας<sup>P</sup>.

Osiris, in this particular relation to Isis, is explained directly after of “the virtue of the river;” or its power and influence as exerted in impregnating and fertilizing the ground covered by its waters: λαμβάνεται δὲ καὶ ἀντὶ τῆς ποταμίας τοῦ Νεῖλου δυνάμεως. ἀλλ' ὅταν μὲν τὴν χθονίαν γῆν σημαίνωσιν, Ὅσιρις ἢ κάρπιμος λαμβάνεται δύναμις· ὅταν δὲ τὴν οὐρανίαν, Ὅσιρις ἐστὶν ὁ Νεῖλος, ὃν ἐξ οὐρανοῦ καταφέρεισθαι οἶονται. πενθοῦσι δὲ καὶ τοῦτον, ἀπομειλισσόμενοι τὴν δύναμιν λήγουσαν καὶ ἀναλισκομένην. ἡ δὲ ἐν τοῖς μύθοις μισγομένη τῷ Ὅσίριδι Ἰσις ἢ Αἰγυπτία ἐστὶ γῆ. διόπερ ἰσοῦται καὶ κύει καὶ ποιεῖ τοὺς καρπούς. διὸ ἀνὴρ τῆς Ἰσιδος Ὅσιρις καὶ ἀδελφὸς καὶ νιὸς παραδέδοται<sup>P</sup>.

According indeed to the popular belief among the Egyptians, Osiris was only another name for the Nile. Speaking of the oxyrynchus, one of the fish found in the Nile, and sacred in their estimation, like the *latus* and some others, *Ælian* observes<sup>q</sup>: Λέγουσι δὲ αὐτὸν οἱ περὶχωροὶ ἐκ τῶν Ὅσι-

<sup>p</sup> Heliodorus, *Æthiopica*, ix. 9.<sup>p</sup> Porphyry, apud Eusebium, *Évange-**lica Præp.* iii. xi. § 49. p. 249.<sup>q</sup> *De Animalibus*, x. 46.

ριδος τραυμάτων γεγονέναι. νοοῦσι δὲ τὸν Ὅσιριν ἄρα τὸν αὐτὸν  
τῷ Νεῖλῳ εἶναι.

Nile pater! quam possum te dicere caussa

Aut quibus in terris obcuisse caput?

Te propter nullos tellus tua postulat imbres,

Arida nec pluvio supplicat herba Jovi.

Te canit atque suum pubes miratur Osirim

Barbara Memphitem plangere docta bovem<sup>r</sup>.

It is clearly to be inferred from the testimony of Pausanias<sup>s</sup> that, in the opinion of some of his contemporaries, the fable of Osiris and Isis itself was to be explained by the annual increase and decrease of the Nile: and it is on this principle, or some other closely connected with it, that Plutarch has founded the ingenious and elaborate interpretation of the entire system of Egyptian mythology, which still survives in the most useful of his works, excepting his Lives; his treatise De Iside et Osiride.

SECTION II.—*Connection of the phenomenon of the inundation with the Sothiacal period. Testimonies to the phenomenon.*  
i. *Its regularity.*

Now the phenomenon, thus annually exhibited by the Nile, so stated and uniform in its occurrence, so important in its consequences to the Egyptians, and, as we may add, not only to them, but to the ancients in general, so mysterious and inexplicable in its causes; viz. that of its overflowing its banks at a certain season in the year, and inundating the country far and wide; appears to have given rise also to the Sothiacal or Canicular period among the Egyptians. Though therefore both the epoch of this period and the period itself are inseparably connected with the equable calendar of Egypt, and through that with the primitive civil calendar of all mankind; yet before we proceed to explain the nature of this period, or to determine its epoch, we think it necessary to begin with directing the attention of our readers first of all to this annual phenomenon of the rise of the Nile, and to the statements which the ancients have left on record concerning it.

<sup>r</sup> Tibullus, i. vii. 23; cf. 43-48.

<sup>s</sup> x. 32. § 10.



The regularity of the phenomenon is one of the first and most obvious of its peculiarities, on which they are seen to insist: and that the more because, though they were familiar with the fact, they were able only to conjecture the cause, of this regularity itself. We shall not here enter on the general question of the opinions of the ancients concerning the causes of the annual rise of the Nile; nor shall we exhibit in detail the testimonies to that effect still extant; though we refer our readers to the most important of them<sup>t</sup>. But as to this characteristic in particular, the regularity of the phenomenon; it appeared to the ancients such that, while all of them assert the fact of the annual commencement of the rise at the same season of the year in general, some of them assert it even of the same day of the year in particular.

Ἔχει γὰρ ὁ ποταμὸς ἐπιδημίας. κάθηται δὲ αὐτὸς Αἰγύπτιος ἀναμένων καὶ ἀριθμῶν αὐτοῦ τὰς ἡμέρας· καὶ ὁ Νεῖλος οὐ ψεύδεται, ἀλλ' ἐστὶν ποταμὸς μετὰ προθεσμίας τὸν χρόνον τηρῶν, καὶ τὸ ὕψος μετρῶν, ποταμὸς ἀλῶναι μὴ θέλων ὑπερήμερος<sup>υ</sup>.

Γένος μὲν αἰνεῖν ἐκμαθὼν ἐπίσταμαι  
Αἰθιοπίδος γῆς, ἔνθα Νεῖλος ἐπάρους  
γαίαν κυλίνδει πνευμάτων ἐπομβρία<sup>v</sup>,  
ἥλιος ἐν ᾗ πυρῶπὸς ἐκλάμψας χθονί<sup>w</sup>  
τήκει πετραίαν χιόνα· πᾶσα δ' εὐθαλὴς  
Αἴγυπτος ἀγνοῦ νάματος πληρουμένη  
φερέσβιον Δήμητρος ἀντέλλει στάχυν<sup>x</sup>.

Γίνεται δὲ καὶ περὶ τὴν Ἀραβίαν καὶ τὴν Αἰθιοπίαν τοῦ θέρους τὰ ὕδατα, καὶ οὐ τοῦ χειμῶνος, καὶ ταῦτα ῥαγδαία, καὶ τῆς αὐτῆς ἡμέρας· πολλάκις, διὰ τὴν αὐτὴν αἰτίαν<sup>y</sup>—Νεῖλος Αἴγυπτον πλωτὴν ἐργασάμενος εὐκάρπῳ τῇ γῇ χρῆσθαι δίδωσιν ὑπὸ τῶν πεδίων ἐκποθεῖς. ἐν Αἰθιοπίᾳ δὲ ὅθεν ἔρχεται ταμίς αὐτῷ δαίμων ἐφέστηκεν ὑφ' οὗ πέμπεται ταῖς ὥραις σύμμετρος· γέγραπται δ' οὐρανομήκης ἐπινοῆσαι· καὶ τὸν πόδα ἔχει πρὸς ταῖς πηγαῖς<sup>z</sup>—Διὰ τοῦ

<sup>t</sup> Herodotus, ii. 20–28. Diodorus Sic. i. 38–41. Scholia ad Apollonium Rhod. iv. 269. Athenæus, ii. 87. Lucetius, vi. 712–737. Pliny, H. N. v. 10. Plutarch, De Placitis Philos. iv. 1. Solinus, Polyhistor, xxxii. 9–11. Ammianus Marcellinus, xxii. 15. Lydus, De Mensibus, iv. 68. 96. 16–100. 12. Photius, Codex, 249. p. 441. l. 34 sq. Vita Pythagoræ. Suidas, Ἑτῆσιαι: Νεῖλος.

<sup>u</sup> Achilles Tatius, De Leucippes et

Clitophontis Amoribus, iv. 12.

<sup>v</sup> Corrige βευσμάτων ἐπομβρίαις.

<sup>w</sup> Lege ἥλιος ἐν ᾗ πυρῶπὸν ἐκλάμψας φλόγα.

<sup>x</sup> Æschylus. Ex Inc. Fabb. Athenæus, ii. 87. Cf. Dindorf, 290.

<sup>y</sup> Aristotle, Meteorologica, i. 12. Opp. i. 349. l. 4. Cf. Photius, Cod. 249. 441, 34 a–14 b.

<sup>z</sup> Philostratus, Imagines, Νεῖλος, i. 737. D.

θέρους τοῦ πυρῳδεστάτου τὰ τῶν Αἰγυπτίων πεδία ὁ Νεῖλος ἐπικλύσας ὅψιν μὲν αὐτοῖς θαλάττης ἠπλωμένης καὶ λείας δίδωσι· καὶ ἀλιεύουσι κατὰ τῆς τέως ἀρουμένης Αἰγύπτιοι, καὶ πλέουσι σκαφαῖς ἐς ταύτην τὴν ὥραν καὶ τήνδε τὴν ἐπιδημίαν τοῦ ποταμοῦ πεποιημένας <sup>a</sup>—Νεῖλον μὲν δὴ λόγος τὸν ποταμὸν τὸν Αἰγύπτιον, ἐπειδὴν οὐρανοῦ τὸ μέσον ἱππεύων ἥλιος ὥραν τὴν θερινὴν ἐργάζηται, ὑπὲρ γῆν Αἰγυπτίων χεόμενον καὶ κρύπτοντα τὰς ἀρούρας τῷ ρεύματι, πέλαγός τε ναυσιπόρον καὶ πλωτὴν ὀλκάσιιν ἀναφαίνειν τὴν Αἰγυπτον <sup>b</sup>—Τὸν Νεῖλον τὸν ποταμὸν τὸν Αἰγύπτιον αἰὲ μὲν ποθοῦσιν Αἰγύπτιοι καὶ παρῆναι διὰ τῶν προφητῶν ἐξ Αἰθιοπίας εὖχονται· ὁ δὲ ποθεῖ μὲν καὶ ταῖς ἄλλαις ὥραις τοῦ ἔτους τὴν Αἰγυπτον ἄτε σοφὴν οὔσαν καὶ ἔνθεον, καὶ τὰς εὐχὰς αὐτῶν ἡδέως προσίεται· ἐπειδὴν δὲ Αἰγύπτιοι Δημήτρια θύσαντες περὶ τὰς ἄλως πονήσωσι τότε ἐκχυθεὶς ἐξ Αἰθιοπίας πολὺς πέλαγος ἐξαίφνης ὑπάσαν ποιεῖ τὴν Αἰγυπτον <sup>c</sup>.

SECTION III.—ii. *To the specific time of the beginning and of the ending of the inundation, respectively.*

The testimony of antiquity is uniform to this effect, that the inundation began at the same time every year, and continued the same length of time, and subsided at the same time every year: that the period of the inundation, dated from the first beginning of the increase of the waters of the river to the first beginning of the decrease, might be reckoned at one hundred days in general: that is, the former being assumed to be at or about the summer solstice every year, the latter might be assumed at or about the autumnal equinox.

i. Αἰγυπτος γὰρ μόνη σχεδόν τι παρὰ τὰς ἐν τῷ νοτίῳ κλίματι χώρας τῶν ἐτησίων ὥρων μίαν τὴν χειμερινὴν οὐ παραδέχεται, τάχα μὲν ὡς λόγος διὰ τὸ μὴ πόρρω ζώνης διακεκαυμένης εἶναι ρέοντος τοῦ πυρῳδούς ἐκείθεν ἀφανῶς, καὶ τὰν κύκλῳ πάντα ἀλαλυνοντος· ταχὰ δὲ ἐπεὶ καὶ ταῖς θεριναῖς τροπαῖς πλημμύρων ὁ ποταμὸς προαναλίσκει τὰς νεφώσεις. ἄρχεται μὲν γὰρ ἐπιβαίνειν θέρους ἐνισταμένου, λήγει δὲ λήγοντος· ἐν ᾧ χρόνῳ καὶ οἱ ἐτησίοι καταράττουσιν ἐξ ἐναντίας τῶν τοῦ Νεῖλου στομάτων <sup>d</sup>—Ὁ γὰρ ταύτης ποταμὸς θέρους ἀκμάζοντος ἡνίκα τοὺς ἄλλους φασὶ μειοῦσθαι, χει-

<sup>a</sup> Aelian, De Natura Anim. x. 43.

<sup>b</sup> Himerius, Oratio iii. § 15. 450.

<sup>c</sup> Ibid. xiv. § 8. 618. Cf. Eclogæ,

xv. 246. 1: Oratio viii. § 5. 548.

<sup>d</sup> Philo Judæus, De Mose, i. Opp. ii. 98. 29.

μάρρους τε καὶ αὐθιγενεῖς, ἐπιβαίνων τε καὶ ἀναχεόμενος πλημμυρεῖ, καὶ λιμνάζει τὰς ἀρούρας<sup>e</sup>—<sup>Δ</sup>Ο γὰρ χειμῶνος ταῖς ἄλλαις χώραις οὐρανὸς τοῦτ' Αἰγύπτῳ θέρους ἀκμάζοντος ὁ Νεῖλος ἐστίν· ὁ μὲν γὰρ ἄνωθεν ἐπὶ γῆν τὸν ὑετὸν ἀποστέλλει, ὁ δὲ κάτωθεν ἄνω τὸ παραδοξότατον ὥν ἄρδει τὰς ἀρούρας<sup>f</sup>.

ii. Τοῦ ποταμοῦ δὲ φύσις πέρι οὔτε τι τῶν ἱρέων, οὔτε ἄλλον οὐδενὸς παραλαβεῖν, ἐδυνάσθη. πρόθυμος δὲ ἕα τάδε παρ' αὐτέων πυθέσθαι, ὅ,τι κατέρχεται μὲν ὁ Νεῖλος πληθύνων ἀπὸ τροπέων τῶν θερινῶν ἀρξάμενος ἐπὶ ἑκατὸν ἡμέρας· πελάσας δὲ ἐς τὸν ἀριθμὸν τουτέων τῶν ἡμερέων ὀπίσω ἀπέρχεται, ἀπολείπων τὸ ῥέεθρον, ὥστε βραχὺς τὸν χειμῶνα ἅπαντα διατελεῖ ἔων, μέχρι οὗ αὖτις τροπέων τῶν θερινῶν<sup>g</sup>.

iii. Πλείους δ' ἢ τετταράκοντα ἡμέρας τοῦ θέρους διαμείναι τὸ ὕδωρ ἔπειθ' ὑπόβασιν λαμβάνει κατ' ὀλίγον, καθάπερ καὶ τὴν αὐξήσιν ἔσχευ. ἐν ἐξήκοντα δὲ ἡμέραις τελέως γυμνοῦται καὶ ἀναψύχεται τὸ πεδίον<sup>h</sup>.

iv. Incipit crescere (Nilus) luna nova quæcunque post solstitium est, sensim modiceque Cancrum sole transeunte, abundantissime autem Leonem: et residit in Virgine iisdem quibus adcrevit modis ... centesimo die<sup>i</sup>.

v. Τῆς γὰρ πληρώσεως τὴν ἀρχὴν ἀπὸ θερινῶν τροπῶν ποιούμενος αὖξεται μὲν μέχρι τῆς ἰσημερίας τῆς μετοπωρινῆς ... τῶν γὰρ ἄλλων ποταμῶν ἀπάντων περὶ τὰς θερινὰς τροπὰς ἐλαττουμένων ... οὗτος μόνος τότε ἀρχὴν λαβὼν τῆς πληρώσεως ἐπὶ τοσοῦτον αὖξεται καθ' ἡμέραν, ὥστε τὸ τελευταῖον πᾶσαν σχεδὸν ἐπικλύζειν τὴν Αἰγύπτον. ὡσαύτως δὲ πάλιν εἰς τοῦναντίον μεταβάλλων τὸν ἴσον χρόνον καθ' ἡμέραν ἐκ τοῦ κατ' ὀλίγον ταπεινοῦται, μέχρις ἂν εἰς τὴν προὔπάρξασαν ἀφίκηται τάξιν<sup>k</sup>—<sup>Δ</sup>Ο γὰρ Νεῖλος ἄρχεται μὲν πληροῦσθαι κατὰ τὰς θερινὰς τροπὰς οὐπω τῶν ἐτησίων πνεόντων, λήγει δ' ὕστερον ἰσημερίας φθινοπωρινῆς πάλαι προπεπαυμένων τῶν εἰρημένων ἀνέμων<sup>l</sup>.

vi. Πληροῦσθαι δὲ ὑπὸ θερινῶν ὄμβρων τὸν Νεῖλόν φασι, καὶ ὑποκαταβαίνειν μετὰ μ' ἡμέρας δι' ὅσων καὶ ἠῤῥηται... ἰστορεῖται δὲ καὶ ὅτι ἀπὸ θερινῆς τροπῆς ὁ Νεῖλος ἀρξάμενος πληθύνει τουτέστι πλημμυρεῖ ἐπὶ ἡμέρας ἑκατόν· εἴτα ἐκλιπὼν τὸ ῥέεθρον καὶ ὀπίσω ἀπελθὼν διατελεῖ βραχὺς τὸν ὅλον χειμῶνα<sup>m</sup>.

<sup>e</sup> Philo Jud. De Mose, i. Opp. ii. 81.

<sup>f</sup> De Profugis, i. 573. 11.

<sup>g</sup> Herodotus, ii. 19.

<sup>h</sup> Strabo, xvii. 1. Cf. Ibid. 'Εν

Ἀλεξανδρείᾳ δὲ τοῦ θέρους ἀρχομένου πληρούμενος ὁ Νεῖλος, κ, τ. λ.

<sup>i</sup> Pliny, H. N. v. 10. 335. Cf. xviii.

<sup>j</sup> Solinus, Polyhistor, xxxii. § 11.

<sup>k</sup> Diodorus Siculus, i. 36.

<sup>l</sup> Ibid. i. 39.

<sup>m</sup> Eustathius, ad Dionysium Perieg. 226.

vii. Καὶ περὶ τῆς τοῦ Νείλου ἀναβάσεως δόξαι διάφοροι· ὁ δὲ συγγραφεὺς Ἀγαθαρχίδου τοῦ Κνιδίου τῇ δόξῃ προστίθεται. φησὶ δὲ οὗτος ἂν ἔτος ἕκαστον ἐν τοῖς κατὰ τὴν Αἰθιοπίαν μεγάλους καὶ συνεχεῖς γίνεσθαι ὄμβρους ἀπὸ θερινῶν τροπῶν μέχρι τῆς ἰσημερίας τῆς ἐν τῷ μετοπώρῳ γινομένης... εὐλόγως οὖν τὸν Νεῖλον . . κατὰ . . τὸ θέρος διὰ τοὺς ἐκείθεν ἐκχεομένους εἰς αὐτὸν ὄμβρους λαμβάνειν τὴν αὔξησιν<sup>n</sup>.

viii. De Sarapi : Οὗτος ἄγει Νεῖλον ὥρα θερούς, οὗτος χειμῶνος ἀνακαλεῖ<sup>o</sup>—Ὁ γὰρ Νεῖλος ἡνίκ' ἂν αὐτῷ ὥραϊον ἢ κατέρχεται... ὥστ' ἐν μηνὶ μικροῦ τέτταρσι τοὺς τέτταρας ἢ πεντεκαίδεκα τούτους πῆχεις πληροῦν περὶ Μέμφιν<sup>p</sup>—Εἰς τέταρτον δὲ μῆνα μάλιστα ἐξίχνεισθαι, καθ' ἑκάστην ἡμέραν ὑψούμενον, τίς λόγος ἐστὶν ἐξ ὑετῶν<sup>q</sup>;—Οὐ τοίνυν μόνον αὖξεται τακτὰ ὁ Νεῖλος ἀλλὰ καὶ ἀπολήγει τεταγμένως ὀπίσω, καὶ σχεδὸν οὐκ ἐν ἐλάττονι χρόνῳ καθίσταται εἰς τὸ ἐξ ἀρχῆς ἢ ἐν ὅσῳ προῖων ἐξεπλήρωσε<sup>r</sup>—Ἀρχεται μὲν γὰρ ἡ ἀνάβασις τροπαῖς θεριναῖς ἢ ὀλίγῃ βραδύτερον<sup>s</sup>—Ὁ δὲ καὶ τοῦ θερούς αὖξεται τοῦ δὲ χειμῶνος ἔσθ' αὐτοῦ, καὶ τότε ἔστί βέλτιστος<sup>t</sup>.

ix. Καὶ γάρ πως συνέπεσε καὶ τὰ Νειλῶα τότε τὴν μεγίστην παρ' Αἰγυπτίοις ἑορτὴν ἐνεστηκέναι, κατὰ τροπᾶς μὲν τὰς θερινὰς μάλιστα καὶ ὅτε ἀρχὴν τῆς αὐξήσεως ὁ ποταμὸς ἐπιλαμβάνει τελουμένην<sup>u</sup>—Ὡς δὲ τὴν ἑορτὴν ἐξεθείαζον, ἐπὶ μέγα Νεῖλον αἶρουτες, Ὡρόν τε καὶ τὸν ζεῖδωρον ἀποκαλοῦντες, Αἰγύπτου τε ὅλως τῆς μὲν ἄνω σωτήρα τῆς κάτω δὲ καὶ πατέρα καὶ δημιουργόν, νέαν ἰλὺν δι' ἔτους ἐπάγοντα καὶ Νεῖλον ἐντεῦθεν ὀνομαζόμενον, τὰς τε ἐτησίους ὥρας φράζοντα, θερινὴν μὲν ταῖς αὐξήσεσι μετοπωρινὴν δὲ ταῖς ὑπονοστήσεσι<sup>w</sup>, κ', τ. λ.

x. Immensæ Cyllenius arbiter undæ est.

Hunc ubi pars cœli tenuit qua mista Leonis  
Sidera sunt Cancro, rapidos qua Sirius ignes  
Exserit, et varii mutator circulus anni  
Ægoceron Cancrumque tenet, cui subdita Nili  
Ora latent : quæ cum dominus percussit aquarum  
Igne superjecto, tum Nilus fonte soluto  
Exit, ut Oceanus lunaribus incrementis

<sup>n</sup> Photius, Codex 65. p. 32. l. 2 :  
Theophylacti Historia: cf. Codex 213.  
p. 171 : 250. p. 454. l. 9. ad sin. :  
Diodor. Sic. i. 41.

<sup>o</sup> Aristides, Orat. viii. 96. 3 from the bottom.

<sup>p</sup> xlvi. Αἰγυπτιακός, 445. 10.

<sup>q</sup> 447. 5.

<sup>r</sup> 448. 4 : cf. 451. 4—10.

<sup>s</sup> 462. 20. <sup>t</sup> 486. 10.

<sup>u</sup> Heliodorus, Æthiopica, ix. 9 : cf.

10.

<sup>w</sup> 22.



Jussus adest : auctusque suos non ante coarctat  
Quam nox æstivas a sole receperit horas<sup>x</sup>.

Inde etiam leges aliarum nescit aquarum :  
Nec tumet hybernus cum longe sole remoto  
Officiis caret unda suis : dare jussus iniquo  
Temperiem cœlo mediis æstatibus exit  
Sub torrente plaga : neu terras dissipet ignis  
Nilus adest mundo contraque incensa Leonis  
Ora tumet, Cancroque suam torrente Syenen  
Imploratus adest : nec campos liberat undis  
Donec in auctumnum declinet Phœbus, et umbras  
Extendat Meroëy.

- xi. Tunc Cererem fragili properant destringere culmo,  
Grajus et in patrias denudat membra palæstras,  
Et tepidum pelagus sedatis languet in undis :  
.. .. Nilusque tumescit in arva.  
Hic rerum status est Cancro cum sidere Phœbus  
Solstitium facit, et summo versatur Olympos<sup>z</sup>.

Nilusque tumescens

In Cancrum, et tellus Ægypti jussa natæ<sup>a</sup>.

xii. Λίαν γὰρ καὶ πάνν ἐπὶ μήκιστον ἐκτέταται ἡ ὕδρα, ὡς  
τριῶν ζωδίων μοίρας ἐπέχουσα, τοῦ τε Καρκίνου καὶ τοῦ Λέοντος  
καὶ τῆς Παρθένου. τοῦτο γὰρ τὸ ζῶον οἱ Ἕλληνες Ὑδραν ἐκάλε-  
σαν, ὅπερ Ἡρακλῆς κατηγωνίσαστο. οἱ μὲντοι Αἰγύπτιοι Νεῖλον  
εἶναι τὸ ἄστρον τοῦτο λέγουσι· καὶ λόγους πιθανοὺς προφέρουσιν.  
ἡ γὰρ κεφαλὴ τοῦ ζωδίου ἐστὶ περὶ τὴν ἱερὴν μοῖραν τοῦ Καρκίνου  
περὶ τὸν Ἐπιφὸν μῆνα, ὃς ἐστι κατὰ Ῥωμαίους Αὐγουστος (corr.  
Ἰούλιος) ὅτε τὸ μεσαίτατόν ἐστι τῆς τοῦ Νεῖλου ἀναβάσεως· τὰ  
δὲ τελευταία αὐτοῦ περὶ τὴν Παρθένον περὶ τὸν Θῶβ, ὃς ἐστι  
Σεπτέμβριος, ὅτε καὶ τὰ τελευταία εἰσι τῆς τοῦ Νεῖλου ἀναβάσεως·  
ἡ δὲ οὐρὰ αὐτοῦ περὶ τὴν κεφαλὴν ὀφείλει εἶναι τοῦ Κενταύρου ἵνα  
καὶ ὑπὸ τὰς χηλὰς ἧ τὸ τέλος αὐτοῦ· τῷ γὰρ Φαωφὶ παύεται ὁ  
Νεῖλος ὃς ἐστι κατὰ Ῥωμαίους Ὀκτώβριος<sup>b</sup>.

<sup>x</sup> Lucan, *Pharsalia*, x. 209 : cf. 194-331. Scholiastes ad v. 212 : Tunc dicit Nilum crescere cum stella Mercurii est inter Cancrum et Leonem.

<sup>y</sup> x. 228 : cf. 298-301.

<sup>z</sup> Manilius, *Astronomica*, iii. 629 : cf. 263-274.

<sup>a</sup> iv. 751.

<sup>b</sup> Scholia ad Aratum, *Phænomena*, 443 : cf. Cod. Mosq. ad 443. This Scholiast, ad 513, dates the autumnal equinox, Thoth 25, (Sept. 22:) though in another instance, ad 462, he dates it in Phaophi, and the vernal in Phamenoth : this latter correctly.

xiii. Διὸ μηνὸς Ἀθὺρ ἀφανισθῆναι τὸν Ὅσιριν λέγουσιν, ὅτε τῶν ἐτησίων ἀπολειπόντων παντάπασιν ὁ μὲν Νεῖλος ὑπονοστεῖ γυμνοῦται δὲ ἡ χώρα<sup>c</sup>.

xiv. Quid ita Nilus æstivis mensibus abundet<sup>d</sup>?—Nilus autem per menses quatuor liquitur<sup>e</sup>.

xv. Verum omnem abscessus originem de sole concipi, primosque fieri excessus tumoris cum per Cancrum sol vehatur: postmodum triginta ejus partibus evolutis...propulso omni fluore tantam vim amnis erumpere...deinde revocari exitus universos cum in Virginem transeat, penitusque intra ripas suas capere cum Libram sit ingressus<sup>f</sup>.—De *Euphrate*: Mesopotamiam opimat inundationis annuæ excessibus, ad instar Ægyptii amnis terras contegens invecta soli fœcunditate iisdem ferme temporibus quibus Nilus exit; sole scilicet in parte Cancri vicesima constituto. tenuatur cum jam Leone decurso ad extima Virginis curricula facit transitum<sup>g</sup>.

xvi. Opinio est celebrior aliis quod spirantibus prodromis, perque dies quadraginta et quinque etesiarum continuis flatibus repellentibus ejus meatum, velocitate cohibita superfusis fluctibus intumescit.....cum autem sol per Cancri sidus cœperit vehi augescens, adusque transitum ejus in Libram, diebusque centum sublatius fluens, minuitur postea, et mitigatis ponderibus aquarum navitis antea pervios equitabiles campos ostendit. abunde itaque luxurians ita est noxius ut infructuosus si venerit parcior...eumque nemo aliquando extolli cubitis altius sedecim possessor optavit<sup>h</sup>.

#### SECTION IV.—iii. *The rate or measure of the increase.*

The degree or amount of the rise of the Nile was measured by the cubit, that is the Egyptian cubit: the magnitude of which learned men appear to have determined to 20·544 inches<sup>i</sup>: and the modern name of which is the *drah*. Πήχεις οἱ Αἰγύπτιοι τὴν αὔξησιν τοῦ Νεῖλου προσαγορεύουσι, καὶ

<sup>c</sup> Plutarch, De Iside et Osiride, xxxix.

<sup>d</sup> Seneca, Natural. Quæst. iv. i. 1: Opp. v.

<sup>e</sup> ii. 20: cf. 16-30.

<sup>f</sup> Solinus, Polyhistor, xxxii. 12.

<sup>g</sup> xxxvii. 2: cf. Pliny, H. N. v. 21.

<sup>h</sup> Ammianus Marcellinus, xxii. 15.

p. 320.

<sup>i</sup> Bailly, Histoire de l'Astronomie Moderne, tome i. Éclaircissements, liv. iii. § iii. p. 506. Cf. the modern writers on Egypt, Sir Gardiner Wilkinson, Manners and Customs, second series, i. xi. 29.

μέτρῳ μετροῦσι τὰ νάματα, καὶ πανήγυρις αὐτοῖς ὁ πῆχυς γίνεται<sup>k</sup>—  
Περὶ τὸν Νεῖλον οἱ πῆχεις ἀθύρουσι, παιδία ξύμμετρα τῷ ὀνόματι.  
καὶ ὁ Νεῖλος αὐτοῖς ὑπεργάννυται τὰ τε ἄλλα καὶ ὅτι κηρύττουσιν  
αὐτὸν ὅσος Αἰγυπτίοις προεχύθη. προσάγεται οὖν καὶ οἶον ἔρχεται  
αὐτῷ ἐκ τοῦ ὕδατος βρέφη ἀπαλὰ καὶ μειδιῶντα, μετέχειν δὲ οἶμαι  
αὐτὰ καὶ τοῦ καλοῦ (λαλοῦ)· καὶ οἱ μὲν τοῖς ὅμοις αὐτοῦ ἐφιζά-  
νουσιν, οἱ δὲ τῶν πλοκάμων ἐκκρέμανται, οἱ δὲ τῇ ἀγκάλῃ καθεύ-  
δουσιν, οἱ δὲ κωμάξουσιν ἐπὶ τοῦ στέρνου<sup>l</sup>, κ', τ. λ.—Εἰ πον τὸν  
Νεῖλον εἶδες γραφῇ μεμιμημένον, αὐτὸν μὲν κείμενον ἐπὶ κροκο-  
δείλου τινὸς ἢ ἵπποποτάμου οἶον οἱ πολλοὶ γράφουσιν ἐν αὐτῷ  
(lege γράφουσιν αὐτόν) μικρὰ δέ τινα παιδία παρ' αὐτὸν παίζοντα,  
πήχεις αὐτοὺς οἱ Αἰγύπτιοι καλοῦσι<sup>m</sup>.

The Nilometrëum, Niloscopëum, or Nilometer, which measured the ascent in cubits of the above description, was kept in various parts of Egypt: at Elephantine<sup>n</sup>, at Syene<sup>o</sup>, or in the island of the Nile near Syene, at Memphis<sup>p</sup>; and afterwards in the Sarapëum, or temple of Sarapis at Alexandria; from which it was transferred, by order of Constantine, after the council of Nice, sometime in A. D. 325, to the great church in the same city<sup>q</sup>.

The *justa mensura* of the ascent was different for different localities in Egypt: but it was most usual to reckon it at 28 cubits for Elephantine, 6 for Mendes or Xoïs, and 14 for Memphis<sup>r</sup>. Seneca indeed observes, Quantum crevit Nilus tantum spei in annum est<sup>s</sup>: but it is certain that too great a rise, i. e. too abundant an overflow of the country, was always deprecated, as much as too scanty and inadequate an inundation: the former being as injurious in one way as the latter in the opposite way. Procopius mentions a rise of this kind, A. D. 549<sup>t</sup>, of more than 18 cubits, and in some quarters of Egypt a second rise the same year: the effect of which was to

<sup>k</sup> Himerius, Eclogæ, iv. § 1. p. 246.

<sup>l</sup> Philostratus, Icones, Νεῖλος, i. 737.

A: cf. Pliny H. N. xxxvi. 11. p. 652.

<sup>m</sup> Lucian, Rhetorum Præceptor,  
6. Opp. iii. 6. l. 12.

<sup>n</sup> Manners and Customs, loc. cit.:  
cf. Corpus Inscriptionum, iii. part xxix.  
p. 406. No. 4863.

<sup>o</sup> Strabo, xvii. i: Heliodorus, Æ-  
thiopica, ix. 22.

<sup>p</sup> Diodorus, i. 36: Strabo, loc. cit.

<sup>q</sup> Cf. Eusebius, Vita Constantini, iv.

25: Socrates, i. xviii. 48. B: Sozomen,  
i. viii. 411. A: cf. v. iii. 597. A.

<sup>r</sup> Plutarch, De Iside et Osiride, xlii: cf. Strabo, xvii. 1: Pliny, H. N. v. 10. 335, 336: xviii. 47. 153: xxxvi. 11. 652: Aristides, Oratio xlviii. 464. 15: 485. 15: Solinus, Polyhistor, xxxii. 15: Ammianus Marc. xxii. 15.

<sup>s</sup> Natural. Quæst. iv. 11. 9: Opp. v.  
<sup>t</sup> De Bello Gotthico, iii. 29. 398. 10:  
18.

render the low grounds useless for sowing that year. The emperor Julian, A. D. 362, attests a rise of 15 cubits by September 20, which was an occasion of rejoicing in Egypt: Πολὺς, φησὶν, ὁ Νεῖλος ἀρθεὶς ... ἐπλήρωσε πᾶσαν τὴν Αἴγυπτον. εἰ δὲ καὶ τὸν ἀριθμὸν ἀκούσαι ποθεῖς, εἰς τὴν εἰκάδα τοῦ Σεπτεμβρίου τρεῖς πέντε<sup>u</sup>. At present, according to Dr. Shaw<sup>w</sup>, and others, the Nile must rise 19 or 20 cubits to cover all the country: though a rise of 16 cubits is still a great cause of rejoicing.

SECTION V.—iv. *Connection of the rise of the Nile with the ἐπιτολὴ of Sirius or the Dog-star.*

*Distinction between the ἀνατολὴ and the ἐπιτολὴ of a star.*

It is next to be observed, as an important step to the determination of the epoch of the Sothiacal period, that according to the unanimous testimony of antiquity the annual phenomenon of the inundation in Egypt was closely connected with the appearance of Sirius or the dog-star; and with that particular time and manner of its appearance which the Greek astronomers properly intend to designate when they speak of the ἐπιτολὴ of one of the fixed stars.

The ἐπιτολὴ of a star in this sense was opposed to the ἀνατολὴ. The ἀνατολὴ of a star properly denoted its rising along with the sun, and consequently κατὰ κόσμον; as the δύσις, similarly expressed, denoted its setting along with the sun, and κατὰ κόσμον also; i. e. according to the order of the universe, of which the sun was the principal luminary, whose risings and settings, and the times and circumstances of each, were naturally supposed to be most agreeable to the appointments of nature and to the course of things in general. The ἀνατολὴ of a star then was the cosmical rising of a star, when it came

<sup>u</sup> Epistolæ, l. 1: Opp. 432. B. C.

<sup>w</sup> Ch. v. Physical and Miscellaneous Observations in Egypt, 433-436: Pococke, Observations on Egypt, ch. viii. ix. 249-258.

In the time of Prosper Alpinus, A. D. 1583, the Nile must rise 18 cubits to irrigate the entire surface of Egypt: Res Ægypt. i. cap. ii. 8, 9: De Medicina Ægyptiorum, i. cap. viii. p. 12.

In his time too the Nilometer was kept in a building called *Beit el Chazar*

(House of Incision,) half a mile from Cairo. Patrio more quoad crescit flumen aquæ auctionem quotidie dimetiuntur. ad quod munus domus ad ripas Nili fuit constructa quam Beit el Chazar nuncupant, quæ a Cairo quingentos passus distat, quæque tot gradus ex marmore habet ut Nili fundum fere tangat, super quos quotidie mane aquæ incrementum transverso pollice dimetiuntur. Res Ægypti, i. ii. 9. See also Dr. Shaw, loc. cit.



to the horizon in the morning along with the sun, and when therefore, if not in conjunction with the sun, it must have been as yet invisible; because immersed in the rays of the sun, and eclipsed by their superior brightness.

The ἐπιτολή was the rising of a star in the morning also; but not *with* the sun, nor yet (as might at first sight be supposed from the preposition which enters into the word) *after* the sun, but *before* the sun; and such a length of time before it, as not to be rendered invisible by the rays of the sun. It was the first appearance of a star in the morning in the east, before the sun was risen; but not before its light had begun to make itself perceptible in the dawn of day, or twilight. A star, rising under such circumstances, was said to rise ἡλιακῶς and not κοσμικῶς; though why, it would not be easy to say, unless because it was rising, though not *with* the sun, yet *in the light* of the sun. This however was the proper meaning of the ἐπιτολή of a star in contradistinction to the ἀνατολή: the first appearance of the star in the morning twilight; but not before it was beginning to be day: when the star consequently was preceding the sun, and therefore rising before the sun, but not too much in anticipation of its rising, or too far in advance of the sun. It was the heliacal or early rising of a star. There was an heliacal setting as well as an heliacal rising; the last visible appearance of a star in the west, after the sun was set; consequently at a certain time in the period of evening twilight. In this case the star must be following the sun; both rising after it, and setting after it also: invisible consequently at the time of its rising, and visible only for a short time just before its setting.

The heliacal rising of a star took place a certain number of days after the cosmical; this number being greater or less in proportion to the magnitude of the star itself, and to the number of degrees to which it must attain, in advance of the sun, in order to be no longer affected by its rays. As a general rule, this may be assumed at 11 or 12 degrees for stars of the first magnitude, 13 or 14 for those of the second, and so on, down to those of the least magnitude visible to the naked eye; which begin to appear every where only when the sun has reached that point of depression below

the horizon, at which twilight itself begins or ends, viz.  $18^{\circ}$ : and it appears to have been so assumed by the ancients in general<sup>x</sup>.

It is with the heliacal rising of Sirius, as thus explained, not with the cosmical, that the ancients have always connected the annual phenomenon of the inundation.

SECTION VI.—*On the virtue or influence attributed to Sirius.*

The dog-star (ἀστροκύων, κύων, Σείριος in Greek, Canis and Canicula in Latin) was only one of a group of stars reckoned by the ancient astronomers to be twenty in number<sup>y</sup>, and forming collectively the constellation (καταστερισμός) of Canis or the Dog: but, as this was the most remarkable and conspicuous of all, the name of the entire constellation seems to have centred at last in this one. Πάλιν δὲ ἐν τούτοις τινὲς ἀστέρες ἰδίας ἔχουσι προσηγορίας. ὁ μὲν γὰρ ἐν τῷ πρόκυνι ὦν λαμπρὸς ἀστήρ προκύων καλεῖται· ὁ δὲ ἐν τῷ στόματι τοῦ κυνὸς, λαμπρὸς ἀστήρ, ὃς δοκεῖ τὴν ἐπίτασιν τὴν τῶν καυμάτων ποιεῖν, ὁμωνύμως ὄλῳ τῷ ζωδίῳ κύων προσαγορεύεται<sup>z</sup>. It is supposed by modern astronomers to be the nearest to the solar system of all the fixed stars; and therefore, as seen from our own planet, it appears the largest and brightest: and it would present that appearance in Egypt in particular, where the sky is always clear, and the atmosphere is never loaded with vapours, (except in the immediate verge of the horizon.) Οὐκ οἶσθα, observes the sophist Aristides<sup>a</sup>, ὅτι ἐγὼ τρία ἐξῆς ἔτη κατετρίβην ἐπ' ἄκροις Αἰγύπτου; Οἶδα ἔφην· ἀλλὰ τί τοῦτο; Ὅτι ἐγὼ ἐν τοσούτῳ χρόνῳ τριφθέντι μοι πανταχῇ σκοπῶν οὐκ ἠδυνήθην ἰδεῖν νέφος αὐτόθι τοῦ θέρους. In like manner, Prosper Alpinus<sup>b</sup>, who also spent four years in Egypt: Nunquam sane vel hyeme vel æstate vel in aliis anni temporibus per totum illud tempus quo in Ægypto viximus, cælum ita obscurum visum est ut sol, luna, reliquaque alia astra vel etiam ex minimis orientia aut occasum petentia, commode conspici non potuerint.

<sup>x</sup> See Ptolemy, Halma, iii. Mémoire of Mr. Ideler, sur le Calendrier de Ptolémée, p. 7. 10.

<sup>y</sup> Eratosthenes, Καταστερισμοί, 33: cf. 43. p. 135. apud Gale, Opuscula Mythologica. Hyginus, Astronomicæ

Poet. xxxv.

<sup>z</sup> Geminus, ii. Uranolog. 13. C. D. cf. xiv. 58. D.

<sup>a</sup> Oratio xlviii. 450. 15.

<sup>b</sup> Res Ægypti, lib. i. cap. i. p. 4.

The dog-star appears for the first time under analogous circumstances, twice in the year, almost for every latitude; once in the morning, rising heliacally, and once in the evening, rising acronychally; that is as the sun is setting, or some time between sunset and the fall of night. It is not more unexpected on the former of these occasions than on the latter: it can no more be said to be appearing for the first time, after being previously invisible, on the one than on the other: it is not less striking and imposing, in its external appearance, on the second of these occasions than on the first: and its effects on the air or the earth, if it is able to produce such effects at all, must be as real at one of these times as at the other. Yet, as Geminus (reasoning on this very subject of the supposed influences of the stars, at their first appearing, on the weather, or in any other way,) justly observes<sup>c</sup>, no particular importance seems to have been attached to its rising in the evening twilight; nor any particular influence attributed to it at that season of the year; or none such as the contrary of that which it was considered to exert at the opposite season of midsummer. It cannot be said indeed that, as an astronomical phenomenon, its acronychal rising is not noted in the *Paraepgmata* of antiquity in its proper order of time; but it is very certain that in none of them is any particular distinction then assigned to it, more than to any other star when first discoverable in the evening; nor any particular influence ascribed to it at the season of the year when it first became visible under such circumstances; a season which coincided every where more or less with the middle of winter; that is, with a state of things in the external world totally the reverse of that which is every where observable at midsummer.

In the middle of summer however when the heat of the weather is every where most intense; when the fruits of the ground or of trees are every where coming to maturity; when the hopes and promise of the spring are every where about to be realised or disappointed; when sickness and mortality, the natural concomitants of the hottest season of the year, are every where most rife and predominant: the sudden

<sup>c</sup> Cap. xiv. *Uranologium*, 60, 61. Cf. Pliny, H. N. ii. 40. *Scholia ad Aratum, Phænomena*, 149.

manifestation of this conspicuous star in the morning dawn, anticipating the rising sun and almost rivalling its splendour; (certainly the chief of its fellows, peerless among its peers, and not only the first but the brightest of the stars,

*πῦρ πνεόντων ἀρχὸς ἀστρῶν—*)

could not fail to impress the people of antiquity with mingled feelings of awe and admiration: and while the influence of the stars on the sublunary world, on its inhabitants, and on its productions of every kind, was an article of implicit faith, which no one thought of calling in question; it is no wonder that both the intensity of the heat, and every other affection, physical or moral, which is characteristic of midsummer, should have been ascribed to Sirius, and to the power and influence which emanated from it\*.

Manilius tells us<sup>d</sup> that the inhabitants of Mount Taurus watched every year, on the tops of their mountain fastnesses, to catch the first glimpse of this star, long before it was yet capable of being seen from the lower grounds; prognosticating, according to the circumstances of the phenomenon, dearth or plenty, war or peace, sickness or health, as the lot of the coming year; from which fact it is an obvious inference that their calendar itself must have been regulated by the heliacal rising of Sirius: and this inference (we may some time or other hereafter have reason to conclude) would be in accordance with the truth. Something of the same kind is implied of the people of Calabria, in the following lines of Valerius Flaccus:

. . . Sic cum stabulis et messibus ingens  
Ira deum et Calabri populator Sirius agri  
Incubuit; coit agrestum manus inscia priscum  
In nemus, et miseris dictat pia vota sacerdos<sup>e</sup>.

Tradition at least has handed down the fact of a similar

\* Non secus ac liquida si quando nocte cometæ  
Sanguinei lugubre rubent, aut Sirius ardor:  
Ille sitim morbosque ferens mortalibus ægris  
Nascitur et lævo contristat lumine cælum.

*Æneid. x. 272.*

Cf. Servius in loc. and ad *Æn. iii. 141.*

<sup>d</sup> i. 403-418. Cf. v. 17: 206-217.

<sup>e</sup> *Argonautica*, i. 682. Cf. v. 369: and Horace, *Epod. i. 27*: on which the

Vetus Scholiasta observes: Solent pas-



custom among the people of Ceos, which went as far back as the time of Aristæus, the reputed son of Apollo and Cyrene<sup>f</sup>: and we may infer, from facts also on record, that a practice of equal antiquity, and probably derivable from the same source, must have existed and have been observed in Thesaly<sup>g</sup>.

We learn from Geminus<sup>h</sup>, that beginning with the parallel of Rhodes, (which was the same as that of Alexandria in Egypt, or nearly so,) the dates of this phenomenon had been noted for from 30 to 40 or 50 days after the summer solstice. Ἐν Ῥόδῳ μὲν γὰρ μετὰ λ' ἡμέρας τῆς τροπῆς ἐπιτέλλει ὁ ἀστὴρ, ἐν ἄλλοις δὲ τόποις μετὰ μ' ἡμέρας τῆς θερυνῆς τροπῆς, οἷς δὲ μετὰ ν'. Geminus' date of the summer solstice was June 27: and the first of these dates must have been July 27: the second August 6, the third August 16. A similar statement occurs in Hipparchus' commentary on Aratus<sup>i</sup>: Περὶ γὰρ τὴν τοῦ κυνὸς ἀνατολὴν καὶ τὰ καύματα μάλιστα γίνεται. αὕτη δὲ γίνεται μετὰ λ' ἔγγιστα ἡμέρας ἀπὸ τῆς θερυνῆς τροπῆς. A difference of a degree in latitude or a little more, in fact, is found to make a difference of a day in time in the date of a phenomenon of this kind. Servius observes of the dog-star<sup>k</sup>: Sirius stella est in ore Canis posita, quæ annis omnibus oritur circa octavum kalendas Julii; i. e. June 24, or midsummer day itself in the Julian calendar: a gloss which occurs also in the old Scholiast on Horace<sup>l</sup>. It might be inferred from this date, that Servius must have written his commentary on the Æneid somewhere in Africa, in some latitude of which that observation might be tolerably correct; especially if understood of the *cosmical* rather than of the *heliacal* rising of Sirius. Some of the learned indeed have inferred from the remark that he wrote in Greece<sup>m</sup>: but it is certain that he himself was a native of Africa<sup>n</sup> (i. e. of Mauretania).

tores ex Calabria transire in Lucaniam propter ejus regionis temperiem, ante ortum Caniculæ, sub mensem Julium, quando Calabria nimio æstu pecori est infesta.

<sup>f</sup> Scholia ad Apollonium Rhod. ii. 518 sqq. Cicero, De Divinatione, i. 57. § 130.

<sup>g</sup> Dicæarchus, Status Græciæ, Descriptio montis Pelii: Geographi Min. ii. p. 29. Cf. also what Livy relates of the ascent of Mount Hæmus, by Philip

of Macedon, B. C. 181: lib. xl. 21, 22. (cf. 18.) <sup>h</sup> xiv. Uranolog. 60. C. A.

<sup>i</sup> Lib. ii. cap. iii. Uranologium, 212. D. E.

<sup>k</sup> Ad Æneid. iii. 141. <sup>l</sup> Epod. i. 27.

<sup>m</sup> Cf. the note of Burman in loc. (ad Æneid. iii. 141.)

<sup>n</sup> Cf. ad Æneid. iv. 242, which seems to imply that also.

For the age of Servius, see Macrobius, Saturnalia, i. 2, 205. 5, 215, &c. 24, 325: ii. 2, 325: v. 1, 58.

SECTION VII.—*Connection of the ἐπιτολὴ of Sirius with the inundation in general.*

i. Ὑδάτων πολλῶν καὶ λαμπρῶν γινομένων κατὰ τὴν Αἰθιοπίαν κατὰ τὰς τοῦ κυνὸς ἀνατολὰς ἕως τῆς ἐπιτολῆς ἀρκτούρου, καθ' οὓς χρόνους καὶ οἱ ἐτησίου πνέουσιν ἄνεμοι ... ἀφ' οὗ καὶ τὸν Νεῖλον ἀναβαίνειν°. This statement is part of a general account of the different opinions concerning the cause of the rise of the Nile, which is given by Athenæus: and it assigns the explanation of Callisthenes in particular. It is intended of the beginning and of the ending of the inundation properly so called, when the Nile overflowed the country; the former, with the heliacal rising of Sirius, (in the Metonic calendar July 26 or 28,) the latter with that of Arcturus (Sept. 13 or 16).

ii. Τὸν Νεῖλόν φασι κατὰ τὴν τοῦ Σειρίου ἄστρου ἐπιτολὴν, ἐν ᾧ καιρῷ μάλιστα εἴωθε πληροῦσθαι<sup>p</sup>, κ', τ. λ.

iii. Ἡ δὲ ἑτέρα ὅτι ἄρα ἡ μὲν ἀνατέλλει, τὸ ἄστρον ὁ κύων, δὲν Ὠρίωνος ἡ φήμη γενέσθαι λέγει, συνανίσχει ἄρα δὲ αὐτῷ τρόπον τινὰ καὶ ὁ Νεῖλος ἐπιὼν ἐς τὴν ἀρδεΐαν τῆς γῆς τῆς Αἰγυπτίας, καὶ ἀναχεΐται περὶ τὰς ἀρούρας<sup>q</sup>.

---

iv. Qualis et arentes cum findit Sirius agros  
Fertilis æstiva Nilus abundet aqua<sup>r</sup>.

---

v. Atque hæc Niliacas demum est mensura per oras,  
Qua rigat æstivis gravidus torrentibus arva  
Amnis, et erumpens imitatur sidera mundi  
Per septem fauces atque ora fugantia pontum<sup>s</sup>.

---

vi. Adde quod omne caput fluvii quodcunque soluta  
Præcipitat glacies ingresso vere tumescit  
Prima tabe nivis : Nilus neque suscitât undas  
Ante Canis radios nec ripis adligat amnem  
Ante parem nocti Libra sub iudice Phœbum<sup>t</sup>.

---

vii. Nam cum tristis hiems alias produxerit undas,  
Tunc Nilum retinent ripæ: quum languida cessant  
Flumina, tunc Nilus mutato jure tumescit.

° Athenæus, ii. 87.

<sup>p</sup> Diodor. Sic. i. 19.

<sup>q</sup> Ælian, De Natura Animal. x. 45.

<sup>r</sup> Tibullus, i. vii. 22.

<sup>s</sup> Manilius, iii. 271.

<sup>t</sup> Lucan, Pharsalia, x. 223.

\* \* \* \* \*

Quoque die Titana Canis flagrantior armat,  
Et rapit humores madidos, ventosque calore  
Compescit, radiisque potentibus æstuat axis,  
Nilo bruma vehit contraria tempora mundo,  
Defectum solitis referens cultoribus æquor.  
Effluit Ægeο stagnantior acrior alto  
Ionio, seseque patentibus explicat arvis.  
Fluctuat omnis ager: remis sonuere novalēs:  
Sæpius æstivo jacuit cum forte sopore  
Cernit cum stabulis armenta natantia pastor<sup>u</sup>.

viii. At Nilus ante ortum Caniculæ augetur mediis æstibus  
ultra æquinoctium<sup>v</sup>.

ix.

Ἡ δέ οἱ ἄκρη

ἀστέρι βέβληται δεινὴ γενὺς ὅς ῥα μάλιστα  
ὀξέα σειριάει· καὶ μιν καλέουσ' ἄνθρωποι  
Σείριον. οὐκ ἔτι κείων ἂμ' ἡελίῳ ἀνιόντα  
φυταλιαὶ ψεύδονται ἀναλδέα φυλλιώσασαι·  
ῥεῖα γὰρ οὖν ἔκρινε διὰ στίχας ὀξὺς ἀΐζας·  
καὶ τὰ μὲν ἔρρωσεν τῶν δὲ φλόον ὤλεσε πάντα.  
κείνου καὶ κατιόντος ἀκούομεν· οἱ δέ οἱ ἄλλοι  
σῆμ' ἔμεναι μελέεσσιν ἐλαφρότεροι περίκεινται<sup>w</sup>.

On which the Scholiast: *Συνανατέλλει τῷ ἡλίῳ ὁ Σείριος ὅτε γίνεταί εἰς τὸν θερινὸν τροπικὸν ἐν τῷ Καρκίνῳ, περὶ τὸν Ἐπιφί μῆνα ὅς ἐστι κατὰ Ῥωμαίους Ἰούλιος ... τηνικαῦτα δὲ, σφοδροῦ γινομένου τοῦ καύματος, πάντες οἱ πρόσφοροι καρποὶ πέπειροι γίνονται<sup>x</sup>.*

x. *De Nilo*: Non pererrat autem tantum eam, (sc. Ægyptum,) sed æstivo sidere exundans etiam inrigat ... crescit porro sive quod solutæ magnis æstibus nives ex immanibus Æthiopiæ jugis largius quam ripis adcipi queunt defluunt, sive<sup>y</sup>, &c.

xi. Ὑπὸ κύνα γάρ φασιν, οὗ μέρος ὁ Σείριος ἀστήρ, πλημμυρεῖ ὁ

<sup>u</sup> Claudian, xlvii. Eidyllia, Nilus, 27.

<sup>v</sup> Seneca, Natural. Quæst. iv. ii. 1. Opp. v.

<sup>w</sup> Aratus, Phænomena, 330. Cf. Germanici Cæs. Aratea Phæn. 332-339.

<sup>x</sup> Cf. Cod. Mosq. ad v. 330. Also the Scholia ad Phæn. 148 sq. 450: Cod. Mosq. ad v. 451.

<sup>y</sup> Pomponius Mela, i. 9.

Νεῖλος, ἐν ἐπιτολῇ κυνὸς ἀναβαίνων· ὅτε ἀποτελοῦνται τὰ παρ' ἡμῖν κατὰ τὴν καθωμιλημένην γλῶτταν λεγόμενα κυνοκαύματα <sup>z</sup>.

SECTION VIII.—*Connection of the ἐπιτολὴ of Sirius with a particular period of the inundation.*

It must not however be inferred from the above statements that the first appearance of Sirius in the morning twilight was considered the harbinger of the approaching rise of the river; or that the inundation was not supposed to begin until that time. The beginning of the rise, (as we have seen from former testimonies,) is uniformly connected with midsummer; a month before this appearance of Sirius in the morning dawn. There was indeed a time, (and within the period embraced by the history of the human race,) when the stated date of the heliacal rising of Sirius, (in Egypt at least,) and the summer solstice, actually coincided. But it goes far beyond any such historical epoch as that of the first Sothiacal period; and far beyond the time to which all the above testimonies without exception refer.

It is not the beginning of the inundation which is to be understood in these allusions to it; but a certain period in the course and progress of the inundation itself, next to its beginning the most important and the most interesting of all; viz. that when, the bed of the river being now completely filled, the waters were ready to overflow. The first appearance of Sirius in the morning twilight coincided with this point of time; and it could not fail to seem a remarkable concurrence of circumstances, thus annually exhibited, that this star should first be discoverable every year in the horizon, rising before the sun, when the Nile also was full to repletion, and ready to burst its banks, and to distribute its fertilizing streams far and wide over the surface of the land of Egypt. It is easy to see that such a coincidence might naturally be so interpreted as to make this star appear to be the lord of the Nile, and the immediate or sensible cause of the inundation itself.

Now this was not that point in the natural or tropical year when the sun was just entering Cancer, but when it was just leaving it, and about to pass into Leo; so that, though the

<sup>z</sup> Eustathius, ad Dionysium Perieg. 220 sqq.



Nile began to rise every year when the sun was in Cancer, it overflowed and inundated the country only when the sun was in Leo. We shall now produce some testimonies to that effect also.

i. Τῶν τε ἄστρον τὸν Σεῖριον Ἰσιδος νομίζουσιν, ὑδραγωγὸν ὄντα. καὶ τὸν λέοντα τιμῶσι, καὶ χάσμασι λεοντείσι τὰ τῶν ἱερῶν θυρώματα κοσμοῦσιν, ὅτι πλημμυρεῖ Νεῖλος

<sup>a</sup> Ἡελίου τὰ πρῶτα συνερχομένοιο Λέοντι <sup>a</sup>.

ii. Ὅντος δὲ ἡλίου ἐν Λέοντι ἀναβαίνει ὁ Νεῖλος .....τότε, φησὶν, καὶ κελάδοντες ἄνεμοι ἐμπέπτουσιν ἐν τῷ πόντῳ ὅτε ὁ ἡλίος ἐστὶν ἐν τῷ Λέοντι· καὶ (γὰρ) παρ' Αἰγυπτίοις αἱ κλείδες τῶν ἱερῶν λεόντων φέρουσι πρόσωπα, καὶ τοῦ σχήματος ἀλύσεις ἀπὴρώρηται, καρδίαν ἐξηρητημένην ἔχουσαι, (intended of the star called Cor Leonis, Βασιλίσκος, or Regulus, cf. ad 148,) ὅλον δὲ τὸ ἄστρον (Leo) ἀφιερῶκασιν ἡλίῳ· τότε γὰρ ἐκβαίνει καὶ ὁ Νεῖλος, καὶ ἡ τοῦ κυνὸς ἐπιτολὴ κατὰ ἐνδεκάτην ὥραν φαίνεται· καὶ ταύτην ἀρχὴν ἔτους τίθενται, καὶ τῆς Ἰσιδος ἱερὸν εἶναι τὸν κύνα λέγουσι καὶ τὴν ἐπιτολὴν αὐτοῦ· ἐφ' (leg. ὑφ') ἦν καὶ τὸν ὄρνυγα θύουσι, τῷ παλαμῷ τούτου τοῦ ζώου σημειούμενοι τὴν καιρὸν τῆς ἐπιτολῆς τοῦ ἄστρον <sup>b</sup>.

iii. Κατὰ τὸν ἐν Λέοντι ἡλίον ἀναχέεται ὁ Νεῖλος <sup>c</sup>.

iv. Νείλου δὲ ἀνάβασιν σημαίνοντες, ὃν καλοῦσιν Αἰγυπτιστὶ νοῦν, ἐρμηνευθὲν δὲ σημαίνει νέον· ποτὲ μὲν λέοντα γράφουσι, ποτὲ δὲ τρεῖς ὑδρίας μεγάλας, ποτὲ δὲ οὐρανὸν καὶ γῆν ὑδρὶ ἀναβλύζουσιν. λέοντα μὲν, ἐπειδὴ ὁ ἥλιος εἰς Λέοντα γενόμενος πλείονα τὴν ἀνάβασιν τοῦ Νείλου ποιεῖται· ὥστε ἐμμένοντος τοῦ ἡλίου τῷ ζῳδίῳ τούτῳ τὸ δίμοιρον τοῦ νέου ὕδατος πλημμυρεῖ πολ-  
λάκις· ὅθεν καὶ τὰς χολέδρας καὶ τοὺς εἰσαγωγεῖς τῶν ἱερῶν κρη-  
νῶν λεοντομόρφους κατεσκεύασαν οἱ ἀρχαῖοι τῶν ἱερατικῶν ἔργων ἐπιστάται <sup>d</sup>. ἀφ' οὗ καὶ μέχρι νῦν κατ' εὐχὴν πλεονασμοῦ ὑγρό-  
τητος \* \* \* τρία δὲ ὑδρεῖα ἢ οὐρανὸν καὶ γῆν ὑδρὶ βλύζουσιν, τὸ μὲν ὑδρεῖον ὁμοιοῦντες καρδίᾳ γλῶσσαν ἔχουσι. καρδίᾳ μὲν, ἐπειδὴ παρ' αὐτοῖς τὸ ἡγεμονικόν ἐστι τοῦ σώματος αὕτη, καθάπερ ὁ Νεῖλος τῆς Αἰγύπτου ἡγεμὼν καθέστηκε· γλῶσση δὲ, ὅτι διαπαν-  
τὸς ἐν ὑγρῷ ὑπάρχουσιν ταύτην καὶ γενέτειραν τοῦ εἶναι <sup>e</sup> καλοῦσι. τρία δὲ ὑδρεῖα, καὶ οὔτε πλείονα οὔτε ἥττονα, ἐπειδὴ ἡ τῆς ἀνα-

<sup>a</sup> Plut. De Iside et Osiride, xxxviii. Cf. Symposiaca, iv. Quæst. v. ii: Aratus, Phænomena, 151.

<sup>b</sup> Scholia ad Aratum, Phænomena, 148-152.

<sup>c</sup> Lydus, De Mensibus, iv. 68. 96. 12.

<sup>d</sup> Cf. Ælian, De Natura Anim. v. 39: xii. 7.

<sup>e</sup> Cf. the Epistle of James, iii, 6.

βάσεως ἐργασία κατ' αὐτοὺς τριμερὴς ὑπάρχει· ἐν μὲν ὑπὲρ τῆς Αἰγυπτίας γῆς τάξαντες, ἐπειδὴ ἐστὶ καθ' αὐτὴν ὕδατος γεννητικὴ \*· ἕτερον δὲ ὑπὲρ τοῦ ὠκεανοῦ· καὶ γὰρ ἀπὸ τούτου ὕδωρ παραγίνεται εἰς Αἴγυπτον ἐν τῷ τῆς ἀναβάσεως καιρῷ· τρίτον δὲ ὑπὲρ τῶν ὄμβρων, οἳ γίνονται κατὰ τὰ νότια τῆς Αἰθιοπίας μέρη κατὰ τὸν τῆς ἀναβάσεως τοῦ Νείλου καιρὸν †.

In the course of time then, and though not from the first, yet certainly before the beginning of the first Sothiacal period among the Egyptians, the annual appearance of Sirius in the morning dawn was found to be coinciding with this period of the inundation, or with one fast approaching to it. The case is more or less the same at present. The first appearance of Sirius in Egypt, in the morning twilight, still takes place nearly at the same time as always before, July 20–22, old style; and the inundation reaches its maximum, and the canals are cut to let out the water, seven or eight days afterwards; according to sir Gardiner Wilkinson § about August 10th new style, July 29 old style. In Prosper Alpinus' time †, this was done when the Nile had attained to an

\* It may illustrate this observation to know that among the various explanations of the phenomenon of the rise of the Nile, proposed by the ancients, there was one, ascribed to Ephorus, which made it the effect of an exhalation from the soil of Egypt itself: a kind of emanation from the ground.

Proclus ad Timæum, i. 85 = 37 A. B: Πορφύριος μὲν δὴ φησιν ὅτι δόξα ἦν παλαιὰ Αἰγυπτίων τὸ ὕδωρ κάτωθεν ἀναβλαστάνειν τῇ ἀναβάσει τοῦ Νείλου· διὸ καὶ ἰδρῶτα γῆς ἐκάλουν τὸν Νεῖλον. καὶ τὸ ἐπανίεναι κάτωθεν ταῦτὸ τῷ Αἰγυπτίῳ δηλοῦν καὶ τὸ σῶζειν λυόμενον. This may explain even the origin of the opinion of Ephorus. The text of Proclus however in the last words seems to be corrupt, and is probably to be corrected by reading καὶ τὸ Σῶθιν or Σῶθην λυόμενον: as if the inundation were the same thing as the dissolution or liquefaction of Sothis—in other words of Isis, the same with the dog-star, or Sothis. One of the opinions of antiquity ascribed the waters of the inundation to the tears of Isis. Horapollon continues in the passage just quoted, "Ὅτι δὲ γεννᾷ ἡ Αἴγυπτος τὸ ὕδωρ δυνατὸν ἐστὶν ἐντεῦθεν μαθεῖν· ἐν γὰρ τῷ λοιπῷ κλίματι τοῦ κόσμου αἱ τῶν ποταμῶν πλημμῦραι ἐν τῷ χειμῶνι ἀποτελοῦνται, ὑπὸ τῶν συνεχῶν ὄμβρων τοῦ τοιούτου συμβαίνοντος· μόνη δὲ ἡ Αἰγυπτίων γῆ, ἐπεὶ μέσον τῆς οἰκουμένης ὑπάρχει καθάπερ ἐν τῷ ὀφθαλμῷ ἡ λεγομένη κόρη, θέρουσ' ἄγει τὴν τοῦ Νείλου ἐαυτῇ ἀνάβασιν.

† Horapollon, i. 21. cf. i. 17. 19.

§ Second series, i. xi. 101. cf. i. xi. p. 9, note.

† Res Ægypti, i. cap. ii. 8–11. From

Pococke, Observations on Egypt, loc. cit. supra, p. 12 it appears that on an average of 46 years (1692–1738,) the canals were most usually cut between

altitude of 18 cubits: and he has described in a very lively and interesting manner the ceremony of opening the canals, as performed on a stated day; called, from the occasion itself, Jacum el Chazar, or Day of the Incision.

SECTION IX.—*On the methods of determining the moment of the ἐπιτολή of Sirius, ascribed by the ancients to the Egyptians.*

The interest taken by the Egyptians in this annual phenomenon of the heliacal rising of Sirius, and the importance which they must have attached to it, are further implied in the singular methods for determining its precise time to which they are said to have had recourse. One of these has been intimated already, in the passage cited from the Scholiast on Aratus: the sacrifice of a quail, on the morning of the day when the star was expected to appear, just before the eleventh hour of the night; that is, as nearly as possible at the beginning of twilight, or but a little later. The object of this immolation was τῷ παλμῷ τοῦ ζῶον τούτου σημειοῦσθαι τὸν καιρὸν τῆς ἐπιτολῆς; and though the word used here is παλμὸς not παλμός, the meaning is the same: and, among the various modes of divination practised by the ancients, that of the παλμοσκοπία was one<sup>i</sup>: in this instance, no doubt, from the convulsive spring or bound which a bird, like the quail, suddenly deprived of life was known to exhibit. The article prefixed to the mention of the quail absolutely is a proof that this must have been an ancient practice in Egypt; and that it could not yet have ceased even in the time of the scholiast on Aratus.

The ancients record some curious particulars of the natural history and instincts of animals; which, whether true or false in themselves, yet clearly imply that in their opinion both birds and beasts and fishes had an intuitive perception of the rising of Sirius, and an instinctive dread of it too.

July 25 and August 10, old style. Instances occur of the incision as early as July 2 and as late as Sept. 19; both however unnatural.

<sup>i</sup> Fabricius, *Bibliotheca Græca*, i. xiv. 99. where there is an account of a work, entitled, Μελάμποδος, ἱερογραμματεύως, περὶ παλμῶν μαντικῆς, πρὸς Πτολεμαῖον

Βασιλέα, (Ptolemy Philad.) He observes also that the *Divinatio e Palpitationibus* is mentioned by Augustine, *De Doctrina Christiana*, ii. 20: and by Isidore, *Orig.* viii. 9. 69 B. who calls diviners of this kind *Salisatores*. Cf. Theocritus, *Idyll.* iii. 37.

Avem parram, (i. e. the jay,) says Pliny<sup>k</sup>, oriente Sirio ipso die non apparere, donec occidit (aiunt): and Oppian tells us of a species of wolf in mount Taurus and Amanus:

Καὶ κύνα Σείριον οἶδε, καὶ ἀντέλλοντα φοβείται·  
αὐτίκα δὴ ῥωχμὸν καταδύεται εὐρέος αἴης,  
ἥε κατὰ σπήλυγγος ἀφεγγέος, εἰσόκεν ἄζης  
ἥελιος παύσαιο καὶ οὐλομένου κυνὸς ἀστήρ<sup>l</sup>.

and more particularly of the fish which he calls ὄνος:

Ἐν δέ τ' ὄνος κείνοισιν ἀρίθμιος, ὃς περὶ πάντων  
πτήσσει ὀπωρινοῖο κυνὸς δριμείαν ὁμοκλήν,  
μίμνει δ' ἐγκαταδὺς σκότιον μυχλόν, οὐδὲ πάροιθεν  
ἔρχεται ὅσσον ἄησις ἐπὶ χρόνον ἄγριος ἀστήρ<sup>m</sup>.

while as to the tunny fish, it was supposed to sympathize with the appearance of this star even by a kind of œstrus or madness, to which it was annually subject at the same time:

Ὅς σφισι καυστηροῖο κυνὸς νέον ἰσταμένοι  
κέντρον πευκεδανοῖο θοὴν ἐπερείδεται ἀλκήν<sup>n</sup>.

We find it stated accordingly that the Egyptians were accustomed to avail themselves of such real or imaginary sympathies of the animal creation with this particular phenomenon, in order to judge of the moment of its recurrence. The oryx, according to Horapollo, was the hieroglyphical symbol of impurity, or perhaps of impudence, because of some antipathy which it seemed to feel to the rising of the sun or of the moon, and to express in its own way: which however, as the Egyptians appear to have supposed, only qualified it the better to serve as an index of the actual moment of the rising of either of those heavenly bodies, and as a test of the accuracy of the calculations of the *horoscopi* themselves. Ἀκαθαρσίαν δὲ γράφοντες ὄρυγα ζωγραφοῦσιν· ἐπειδὴ ἐπ' ἀνατολὴν ἐρχομένης τῆς σελήνης ἀτενίζων εἰς τὴν θεὸν κραυγὴν ποιεῖται ..... ὥσπερ ἐλ ἀγανακτῶν καὶ μὴ βουλόμενος ἰδεῖν τὴν τῆς θεοῦ ἀνατολήν. τὰ δ' αὐτὰ ποιεῖ καὶ ἐπὶ (τῆς) τοῦ ἡλίου θείου ἄστρου ἀνατολῆς. διόπερ οἱ ἀρχαῖοι βασιλεῖς, τοῦ ὥροσκοποῦ σημαίνοντος αὐτοῖς τὴν ἀνατολήν, ἐπικαθίσαντες τούτῳ τῷ ζῳῷ, διὰ μέσου αὐτοῦ ὥς τινων γνωμόνων τὴν τῆς ἀνατολῆς ἀκρίβειαν ἐγνώριζον<sup>o</sup>.

<sup>k</sup> H. N. xviii. 69. § 5. 244, 245.

<sup>l</sup> Cynegetica, iii. 322.

<sup>m</sup> Halieutica, i. 151. Cf. Ælian, De

Nat. Anim. vi. 20.

<sup>n</sup> Ibid. ii. 509.

<sup>o</sup> Horapollo, i. 49.



This animal too was believed to sympathize with the appearance of Sirius; and to indicate the precise moment, when its influence could first be sensibly perceived, by sneezing. Ὁ ὄρυξ τὸ ζῶον πταρνύμενος ἀνατέλλειν διασημαίνει τὴν Σῶθιν<sup>p</sup>—Orygem adpellat Ægyptus feram, quam in exortu ejus (Caniculæ) contra stare et contueri tradit, ac velut adorare cum sternuerit<sup>q</sup>—Αἰγυπτίῳ ἀκούω λεγόντων τὸν ὄρυγα συνιέναι τὴν τοῦ Σερίου ἐπιτολὴν πρῶτον, καὶ τὴν ἐπιτολὴν μαρτύρεσθαι τῷ πτάρματι αὐτόν. νεανιεύονται δὲ καὶ οἱ Λίβνες, ἀνὰ κράτος φάσκοντες καὶ τὰς αἴγας παρ' αὐτοῖς προείδεναι τὸ αὐτὸ δῆπον τοῦτο. αὐται μὴν καὶ μέλλοντα ὑέτον προδηλοῦσι<sup>r</sup>—Λίβνες δ' Αἰγυπτίῳ καταγελῶσι μυθολογούντων περὶ τοῦ ὄρυγος ὡς φωνὴν ἀφιέντος ἡμέρας ἐκείνης καὶ ὥρας ἧς ἐπιτέλλει τὸ ἄστρον ὃ Σώθην αὐτοὶ κύνα δὲ καὶ Σερίον ἡμεῖς καλοῦμεν. τὰς γὰρ αὐτῶν ὁμοῦ πάσας αἴγας, ὅταν ἀνασχῇ μεθ' ἡλίου τὸ ἄστρον, ἀτρεκῶς ἐκεῖ στρεφομένας ἀποβλέπειν πρὸς τὴν ἀνατολήν· καὶ τεκμήριον τοῦτο τῆς περιόδου βεβαιότατον εἶναι, καὶ μάλιστα τοῖς μαθηματικοῖς κανόνσιν ὁμολογούμενον<sup>s</sup>—Τούτῳ τι παραπλήσιον Λύκος ἱστορεῖ· φησὶ γὰρ ἐν Λιβύῃ τὰ κτήνη τὸν μὲν ἄλλον χρόνον τὰ (μὲν) αὐτοῖς ἐναντία τὰ δ' ὡς ἔτυχε κοιμάσθαι· τῇ δὲ νυκτὶ καθ' ἣν τοῦ κυνὸς ἀνατολὴ γίνεται πρὸς αὐτὸ τὸ ἄστρον ἐστραμμένα· καὶ τούτῳ τεκμηρίῳ τῆς ἐπιτολῆς τοὺς ἐκεῖ χρῆσθαι<sup>t</sup>.

These statements must rest on the credit of their own authors. We will however produce one other still more extraordinary than any of the above, which occurs in Solinus<sup>u</sup>. Ægyptium limitem qua ad diacecaumenen (διακεκαυμένην) tendit incolunt populi, qui momentum quo reparari mundum ad motus ferunt annuos hoc studio deprehendunt. eligitur sacer lucus, in quo conseptant animalia diversissimi generis. ea ubi ad statum modum cœlestis pervenit disciplina sensus suos significationibus produnt quibus possunt. alia ululant, alia mugiunt, quædam stridunt, quædam rudunt, nonnulla simul confugiunt ad volutabra. hoc argumentum illis est magistrum ad indicium temporis deprehendendi.

<sup>p</sup> Photius, Bibl. Cod. 242. Vita Isidori, 343. 12.

<sup>q</sup> Pliny, H. N. ii. 40.

<sup>r</sup> Ælian, De Natura Anim. vii. 8.

<sup>s</sup> Plutarch, Πότερα τῶν ζώων, 21.

<sup>t</sup> Antigonus Carystius, Ἱστοριῶν παραδόξων συναγωγὴ, cap. lxxvi. p. 61. From Lycus of Rhegium. See cap. cliv. p. 113.

<sup>u</sup> Polyhistor, xxxii. 37.

SECTION X.—On the derivation of the name of the dog-star,  
*Sirius, in Greek.*

The connection between the phenomenon of the annual reappearance of the dog-star, and that of the annual rise and inundation of the Nile, may be discovered also in the name given to this star by the Greeks, as soon as they came to know it by a name of its own. This Greek name is *Sirius*: and *Sirius* is not so old as the time of Homer, though it is older than that of Archilochus and that of Hesiod. The explanations of this name of *Sirius*, which the Greek grammarians have proposed, are entitled to little consideration: and we shall be content at present with citing only one, as a specimen of the rest, from the Scholia on Apollonius Rhodius<sup>w</sup>: *Σείριος· ἦτοι παρὰ τὴν ζέειν Ζείριος, καὶ Σείριος, ἡ παρὰ τὸ ἐκκενοῦν ἡμᾶς ἴδρωτι βρομένους· σειροῦν γὰρ τὸ κενοῦν... ὁμοίως δὲ καὶ πάντα τὰ ἄστρα σείρια (ἄν) λέγοιτο οἰονεῖ τείρεά τινα ὄντα ... εἶναι δὲ τὸ ἄστρον οἱ μὲν τοῦ Ὠρίωνος κυνός (φασιν), οἱ δὲ τῆς Ἡριγόνης, οἱ δὲ τῆς Ἰσιδος, οἱ δὲ Κεφάλου. ὁ δὲ Τιμοσθένης κύριον ὄνομα εἶναι φησι.*

Among the etymologies and explanations of the name of the Nile also, in Greek, (*Νεῖλος*,) the most obvious and common is that of *νέα ἰλὺς*: and for this, we have seen reason to conclude, there was some foundation in the Egyptian name of the Nile itself, or in one of the Egyptian names for it, as soon as it came to be known to the Greeks; though even this throws no light on the meaning of the name of *Sirius*. *Τὸ γὰρ δόξαν τοῖς γραμματικοῖς ἀπὸ τῆς νέας ἰλὺς ὠνομάσθαι τὸν Νεῖλον, πρὸς ἐτυμολογίαν ὀρᾷ<sup>x</sup>—Σεσημείωται τὸ Νεῖλος· τοῦτο γὰρ διὰ διφθόγγου ἐκ τῆς ἐτυμολογίας, παρὰ τὸ νέαν ἰλὺν ἔχειν· καὶ τί ἔχει νέαν ἰλὺν; ἐπειδὴ κ', τ. λ. γ—Νεῖλος... παρὰ τὸ νέω τὸ ῥέω καὶ τὸ ἰλὺς Νεῖλος, καὶ κατὰ συναίρεσιν Νεῖλος, οἰονεῖ ὁ ῥέων ἰλὺν... ἡ... παρὰ τὸ νέος, Νεῖλος καὶ Νεῖλος· καὶ γὰρ νέος κατ' ἔτος γίνεται. πλημμυρεῖ γὰρ κατ' ἔτος καὶ ποτίζει πᾶσαν τὴν Αἴγυπτον. ἡ παρὰ τὸ νέαν ἰλὺν ἄγειν ἐν τῇ ἀναβάσει<sup>z</sup>.*

*\* Ἦλθε καὶ εἰς Αἴγυπτον ἐμὸν ῥόον, ὃν πολιῆται  
Νεῖλον ἐφημίζαντο φεράνυμον, οὐνεκα γαίῃ*

<sup>w</sup> Ad ii. 519. *Σείριος*.

<sup>x</sup> Lydus, De Mensibus, iv. 68. p. 96.

l. 15.

<sup>y</sup> Anecdota Græca Oxon. i. 237. 26. *Κτίλος*. *Ἐπιμερισμοί*, κ. Cf. Eustathius

ad Dionysium Perieg. 221; Heliodorus, *Æthiopica*, ix. 22.

<sup>z</sup> *Etymologicum Magnum*, 545, *Νεῖλος*.

εἰς ἔτος ἐξ ἑτεος πεφορημένος ὕγρὸς ἀκοίτης  
 χεύματι πηλώοντι νέην περιβάλλεται ἴλυν<sup>a</sup>.

Hence Servius, commenting on Virgil's

Et viridem Ægyptum nigra fœcundat arena<sup>b</sup>:

Novum<sup>c</sup> enim semper limum trahit qui efficit fœcunditatem . . . unde et Nilus dictus est, quasi νέαν ἴλυν, id est *novum limum*, trahens. nam antea Nilus Latine Melo dicebatur: that is, as he means, by Ennius<sup>c</sup>.

It appears indeed from Horapollon<sup>d</sup>, that the Nile had a sacred or hieroglyphical name, which he expressed by νοῦν, and explained to denote νέον or new: which would so far agree with this Greek derivation of the word Νεῖλος also. Concerning this Egyptian name we may possibly have something to say hereafter. In reality however the Nile appears to have had more names than one. Pomponius Mela has specified one at least among the Æthiopians: In horum finibus fons est, quem Nili esse aliqua credibile. Nuchal ab incolis dicitur, et videri potest non alio nomine adpellari (quam Nilum) sed a barbaris ore corrupto<sup>e</sup>. This supposes Nuchal only a corruption of Nilus. Orosius too appears to have meant this name, where he is speaking of a river in Africa, supposed to be the Nile: Quem utique prope fontem barbari Dara nominant, ceteri vero accolæ Nuchal vocant<sup>f</sup>. And Marcianus Capella seems to have intended it also, under the form of Nital: Ambifariumque Nital secum congressa mitificat<sup>g</sup>: Nital being here apparently the constellation Taurus, in the sense of the Nile. This word Nuchal is probably the same with Neel, still applied to the Nile in the same parts of the world<sup>h</sup>; as in Neel el Azrek *the Blue Nile*, Neel el Abiad *the White Nile*.

Another name however for the Nile was Siris: concerning which Pliny observes<sup>i</sup>: Sic quoque etiamnum Siris ut ante nominatur per aliquot millia (miles), et in totum Homero

<sup>a</sup> Nonnus, iii. 275, Cadmus ad Ele-  
ctram, De Io.

<sup>b</sup> Georgica, iv. 291; cf. ad Æneid.  
ix. 31.

<sup>c</sup> Cf. ad Æneid. i. 741; iv. 246.

<sup>d</sup> i. 21. See supra, p. 21.

<sup>e</sup> iii. 9. Cf. Lydus, De Mensibus,  
iv. 68. p. 96.

<sup>f</sup> i. ii. § 70.

<sup>g</sup> ii. 42.

<sup>h</sup> See sir Gardiner Wilkinson, Man-  
ners and Customs, first series, i. ch. i.  
p. 2. note; cf. second series, i. xi. 51.  
Cf. Pliny, H. N. v. 10. 329, who seems  
to mean the same fountain as Orosius,  
under the name of *Nigris*.

<sup>i</sup> H. N. v. 10. p. 330.

Ægyptus; aliisque Triton. Stephanus Byz.<sup>1</sup> De Syene: Πόλις Αιγύπτου καὶ Αἰθιοπίας ἐπὶ τῷ Νείλῳ· μεθ' ἣν ὠνόμασται Σίρις ὁ ποταμός. And Dionysius Periegetes<sup>m</sup>:

Ἐνθεν πιωτάτοιο κατέρχεται ὕδατα Νείλου,  
ὃς δῆτοι Λιβύηθεν ἐπ' ἀντολίην πολλὸς ἔρπων  
Σίρις ὑπ' Αἰθιοπῶν κυκλήσκειται, οἱ δὲ Συήνης  
ἐνναίεται στρεφθέντι μετ' οὐνομα Νείλον ἔθεντο.

Thus paraphrased by Festus Avienus<sup>n</sup>:

Hic qua secretis incidit flexibus agros  
Æthiopum lingua Siris ruit: utque Syenen  
Cærus accedens diti loca flumine adulat  
Nomine se claro Nilum trahit.

According to these testimonies then Siris was a name of the Nile; but whether more properly an Æthiopian one, or equally so among the Egyptians, may be doubtful. The probability is that it was as much the one as the other. Now Sihor is the name of the Nile in Scripture: "From Sihor which is before Egypt"<sup>o</sup>—"And by great waters the seed of Sihor, the harvest of the river, is her revenue"<sup>p</sup>—"And now what hast thou to do in the way of Egypt, to drink the waters of Sihor? or what hast thou to do in the way of Assyria, to drink the waters of the river?" This last text proves very clearly that Sihor was as much the distinctive river of Egypt, as the Euphrates or the Tigris of Assyria or Mesopotamia; and therefore that it must be the Nile.

Now the Sihor of Scripture might easily in pronunciation be contracted into Sîr: and if it once assumed that form, and in that form became known to the Greeks, they would naturally make both Σίρις and Σείριος of it. It is certain that the first syllable is long in Σίρις as much as in Σείριος.

The proper meaning of this word Σείριος, applied to the dog-star, on this principle would be the star of Sihor or Siris; that is, of the Nile. And what could be a more appropriate name for it than that? rising as it did and becoming visible every year in Egypt just as the Nile was ready to inundate the country. In the opinion of the learned Selden<sup>r</sup>,

<sup>1</sup> Συήνη, 683, 684.

<sup>m</sup> 221; Geographi Min. iv. 38, 39.

<sup>n</sup> 336.

<sup>o</sup> Joshua, xiii. 3.

<sup>p</sup> Isaiah, xxiii. 3.

<sup>q</sup> Jeremiah, ii. 18.

<sup>r</sup> De Diis Syris, Syntagma i. cap. iv. 147-149, Lips. 1668.



this Greek name of the Nile, Σίρις, (which he too derives from the Sihor or Schichor of Scripture,) with the article prefixed, (ὁ Σίρις,) was the best explanation of the Egyptian name of Osiris. And though we do not ourselves concur in this opinion, yet we may collect from Plutarch that some such explanation of the name of Osiris had occurred to the learned in his time: Εἰσὶ γὰρ οἱ τὸν Ὅσιριν ἀντικρὺς ἥλιον εἶναι καὶ ὀνομάζεσθαι Σείριον ὑφ' Ἑλλήνων λέγοντες· εἰ καὶ παρ' Αἰγυπτίοις ἢ πρόθεσις τοῦ ἄρθρου τοῦνομα πεποιήκεν ἀμφιγνοεῖσθαι<sup>s</sup>.

SECTION XI.—*On the name of κύων, or the dog, as applied to Sirius.*

It appears from some of the testimonies already produced, that the dog-star itself bore the name of Isis in Egypt. Add to these Eratosthenes<sup>t</sup>: Ἐχει δ' ἀστέρας ἐπὶ μὲν τῆς κεφαλῆς α', ὃς Ἴσις λέγεται: and Hyginus<sup>u</sup>: In capite autem alteram (stellam habet), quam Isis suo nomine statuisset existimatur, et Sirion adpellasse propter flammæ candorem, quod ejusmodi sit ut præter ceteras lucere videatur.

This fact however is most distinctly asserted by Horapollo<sup>w</sup>: Ἴσις δὲ παρ' αὐτοῖς (Αἰγυπτίοις) ἐστὶν ἀστὴρ Αἰγυπτιστὶ καλούμενος Σῶθις, Ἑλληνιστὶ δὲ ἀστροκύων, ὃς καὶ δοκεῖ βασιλεύειν τῶν λοιπῶν ἀστέρων, ὅτε μὲν μέλινω ὅτε δὲ ἥσσω ἀνατέλλων, καὶ ὅτε μὲν λαμπρότερος ὅτε δὲ οὐχ οὕτως. And it seems to have been because of the supposed identity of Isis with the dog-star, and of the influence of that star in particular on the rise of the Nile, that Lucian represents it as part of the office of Io, translated to Egypt and changed into Isis, to bring up the Nile, that is, to preside over the inundation<sup>x</sup>: Τὴν δὲ Ἰὼ διὰ τοῦ πελάγους ἐς τὴν Αἰγυπτὸν ἀπαγαγὼν Ἴσιν ποιήσων· καὶ τὸ λοιπὸν ἔστω θεὸς τοῖς ἐκεῖ καὶ τὸν Νεῖλον ἀναγέτω καὶ τοὺς ἀνέμους ἐπιπεμπέτω καὶ σωζέτω τοὺς πλείοντας.

We learn also from this passage of Horapollo, that the proper Egyptian name of the dog-star, even as thus associated and thus identified with Isis, was not Isis but Sothis. Not that Sothis was the original form of this word in

<sup>s</sup> De Iside et Osiride, liii.

<sup>t</sup> Καταστερισμοί, 33, Κύων.

<sup>u</sup> Astronomicῶν Poeticῶν xxxv. Cf.

Pliny, H. N. ii. 6. p. 209, de Lucifero : Ita que et in magno nominum ambitu

est : alii enim Junonis, alii Isidis, alii matris deum adpellavere.

<sup>w</sup> i. 3.

<sup>x</sup> i. 208. Deorum Dialogi, iii. Cf. Isidore, Origines, i. 3. p. i. F. viii. ii. 71. G.

Egyptian; but the Egyptian, expressed according to the Greek idiom. The purely Egyptian form of the word was probably Σῶθι, which in Greek naturally became Σῶθις; and though it occurs in Greek in the shape both of Σώθης and of Σῶσις also, there can be little doubt that each of these is a corruption of Σῶθις. The former occurs in the passage quoted *supra* from Plutarch<sup>y</sup>. In the *Vita Isidori* of Damascius the word is Σῶθις<sup>z</sup>. "Ὅτι τὴν Σῶθιν Αἰγύπτιοι τὴν Ἰσιν εἶναι θεολογοῦσιν, οἱ δὲ Ἕλληνες εἰς τὸν Σείριον ἀνάγουσι τοῦτο τὸ ἄστρον, καὶ ὡς κύνα τὸν Σείριον, ὁπαδὸν τοῦ Ὠρίωνος ὄντα κυνηγετοῦντος, οὕτω διαζωγραφοῦσι, μᾶλλον δὲ ἐντετυπωμένον τῷ οὐρανῷ δεικνύουσι.

Now it would be a great mistake to confound this Egyptian name of the dog-star, Σῶθ, or Σῶθι, with that of the first month in their calendar Θῶθ, which is not even Egyptian, being merely the Alexandrine form of Θωῦθ, and so far a corruption of the Egyptian; much more with that mythological conception of the Egyptians, in the shape of a person, to whom they attributed the invention of letters and numbers, and of arts and sciences; and whom the Greeks, on that account, identified with their Hermes, and the Romans with their Mercurius: for the name of this person in the Egyptian does not appear to have been Thoth, but instead of that Tat, or Tot, or Toot. Still less is this Egyptian name of the dog-star, Sothis, to be confounded with that of Typhon, the antagonist principle of the Egyptian Osiris; which was Σῆθ, not Σῶθ: though all these mistakes, and all this confusion of distinct names one with another, have been made\*.

\* Ptolemy, iii: *Recherches Historiques sur les Observations Astronomiques des Anciens*, p. 31, Mr. Ideler observes: "Il est hors de doute que *Thoth Sothis* et *Seth* sont le même mot prononcé différemment."

He adds that according to Bochart, (*Hierozyicon*,) Sothis in the old Egyptian signified a dog, as it does in the Coptic at present. There is no proof however that Sothis ever did mean a dog, either in the old Egyptian or in the Coptic, until the Egyptians themselves had learnt from the Greeks to consider κύων, in the sense of a dog, and Sothis, the star so called, as the same.

Jablonski, as Mr. Ideler continues, denied this assertion of Bochart's, and maintained that Sothis in the Coptic meant only an *epoch* or *beginning of time*. Its meaning in that point of view could not be older than the Sothiacal period; and must have been, in reality, much later.

<sup>y</sup> Πότερα τῶν ζώων, 21.

<sup>z</sup> Photius, *Cod.* 242. p. 340. l. 36. Cf. 343. l. 12.

The monuments and sculptures confirm the preceding testimonies of antiquity to this point; by demonstrating that even according to them the proper hieroglyphical style of Isis is Isis-Sothis<sup>a</sup>, (i. e. Isis and Sothis united,) and that the hieroglyphical symbol of Sirius itself is Isis. The truth is that, as soon as the Egyptians had conceived the idea of their Isis, they translated her at once to the heavens; fixing on the dog-star as her representative, and identifying her ever after with this star in particular. The well known inscription at Nysa in Arabia, reported by Diodorus, ran accordingly in these terms: Ἐγὼ εἰμι γυνὴ καὶ ἀδελφὴ Ὅσιριδος βασιλέως· ἐγὼ εἰμι ἢ πρώτη καρπὸν ἀνθρώποις εὐροῦσα ... ἐγὼ εἰμι ἢ ἐν τῷ ἄστρῳ τῷ κυνὶ ἐπιτέλλουσα ... χαῖρε χαῖρε Αἰγυπτέ· ἢ θρέψασά με<sup>b</sup>: an inscription which sufficiently attests its own origin, whether it was actually to be found at Nysa, (or any where else out of Egypt,) or not. It implies the same thing that, according to Plutarch, the ψυχὴ or soul of Isis was believed to have passed into the dog-star, as that of Horus was to have passed into the constellation of Orion, and that of Typhon into the Bear<sup>c</sup>: τὰς δὲ ψυχὰς ἐν οὐρανῷ λάμπειν ἄστρα, καὶ καλεῖσθαι κύνα μὲν τὴν Ἰσιδος ὑφ' Ἑλλήνων, ὑπ' Αἰγυπτίων δὲ Σῶθιν, Ὁρίωνα δὲ τὴν Ὠρου, τὴν δὲ Τυφῶνος ἄρκτον.

Now the true meaning of this word Σῶθις in the Egyptian appears to be intimated in the following passage of Plutarch<sup>d</sup>: Ἐν δὲ ταῖς Ἑρμοῦ λεγομέναις βίβλοις ἱστοροῦσι γεγράφθαι περὶ τῶν ἱερῶν ὀνομάτων, ὅτι τὴν μὲν ἐπὶ τῆς τοῦ ἡλίου περιφορᾶς τεταγμένην δύναμιν Ὠρον, Ἕλληνες δ' Ἀπόλλωνα, καλοῦσι· τὴν δ' ἐπὶ τοῦ πνεύματος οἱ μὲν Ὅσιριν οἱ δὲ Σάραριν οἱ δὲ Σῶθι Αἰγυπτιστί· σημαίνει δὲ κύησιν ἢ τὸ κύειν. διὸ καὶ παρὰ τροπῆς γενομένης τοῦ ὀνόματος Ἑλληνιστί κύων κέκληται τὸ ἄστρον, ὅπερ ἴδιον τῆς Ἰσιδος νομίζουσιν.

It thus appears, (and as it would seem on no less an authority than that of the books ascribed to Hermes,) that the meaning of this Egyptian term in Greek was κύησις, or τὸ κύειν, in English *conception*, or *to conceive*: and this being once understood, it furnishes the most obvious and the most natural explanation of the name of the dog-star in Greek,

<sup>a</sup> Wilkinson, Manners and Customs, sec. series, i. xiii. 366-371. 377, 378.

<sup>b</sup> i. 27. Cf. 15, and Herod. iii. 97.

<sup>c</sup> De Iside et Osiride, xxi. Cf. xxii.

<sup>d</sup> Ibid. lxi.

which could possibly be imagined. The Greek of *to conceive* is *κύνειν* too: and supposing it by any means to have become known to the Greeks that the Egyptian name for the star in question was *Σῶθι*, and that *Σῶθι* in their language meant *to conceive*; nothing would be more natural, nothing more probable, than that, as Plutarch himself observes, they should have construed this appellation in their own language to mean *ὁ κύων ἀστήρ*. And what would there be in the Greek to distinguish between *ὁ κύων ἀστήρ*, in the sense of the *star of conception, the conceiving star*, and *ὁ κύων ἀστήρ* in the sense of the *dog-star*? Not even a difference of accent; much less of orthography. Now this star was already known among the Greeks by the name of *ὁ κύων* absolutely, and in the sense of the *dog, the dog of Orion*, in the time of Homer: but it was not yet known by the name of *Sirius*, nor, for ought which appears to the contrary, for 300 years after the time of Homer. And this too would be only consistent, if *Sothi* was more properly the name of this star in Egypt, than *Sihir*; or if the latter was as much an *Æthiopic* name for it, as an *Egyptian*, but the former was purely an *Egyptian* one.

We have already had occasion to observe that, as all the stars have their proper time for rising heliacally in every latitude, so have they for setting heliacally; and that there is nothing in the nature of things, nothing but the arbitrary distinctions of human opinion, to discriminate their power and influence, such as they are in themselves, at one of those times, from the same power and influence at the other. In the particular case of *Sirius*, the circumstance to be remarked with respect to these distinctions is that, in connection with the present system of things, its heliacal setting was an earlier phenomenon than its heliacal rising any where; and its first heliacal setting for a given latitude, like that of the ancient *Jerusalem*, was nearly coincident with the beginning of things itself; i. e. with April 25\*.

\* We have been favoured by professor Challis of Cambridge with the following formulæ for calculating the right ascension and the declination of *Sirius*, for any number of centuries before an assumed point of time; for instance, A. D. 1837, the date of the fifth Sothiacal period, in connection with the present system of things; that is, reckoned from April 24 = 25



Now the knowledge of *this* fact seems to have been perpetuated by tradition; (especially among the nations of the east;) viz. that, if any of the stars more than another could be said to have been in the ascendant at the beginning of things, or any to have been more closely connected with the

B. C. 4004, perpetually. This formula for the variation in Right Ascension is,

$$2648.6 \times i + 08.0500 \times i^2$$

in which  $i$  is the number of centuries before the assumed epoch: and for the variation in Declination it is,

$$45''.0 \times i - 19''.25 \times i^2$$

The epoch then being assumed as A. D. 1837, in reckoning back to B. C. 4004,  $i = 58.4$  and  $i^2 = 3410.56$ . We have therefore, for the R. A.

$$\begin{array}{rcll} 2648.6 \times i = 2648.6 \times 58.4 & - & - & = \text{sec. } 15452.64 \\ + 08.0500 \times i^2 = 08.0500 \times 3410.56 & & & = + 170.528 \\ & & & \hline & & & 15623.168 \\ & & & = 4\text{h. } 20\text{m. } 23\text{s. } 168 \end{array}$$

In like manner we have for the Declination,

$$\begin{array}{rcll} 45''.0 \times i = 45''.0 \times 58.4 & - & - & = 26280.00 \\ - 19''.25 \times i^2 = - 19''.25 \times 3410.56 & - & & = 65653.28 \\ & & & \hline & & & - 39373.28 \\ & & & = - 10^\circ 56' 13''.28 \end{array}$$

Now, according to the Nautical Almanac, the mean Right Ascension of Sirius May 6 (= April 24) A. D. 1837, was 6h. 37m. 57s. 32, and the Declination (S.) was  $16^\circ.29'.54''.255$ .

We have therefore the mean Right Ascension of Sirius,

	h.	m.	s.
A. D. 1837. April 24 .. .. .	6	37	57.32
Subtract 58.4 centuries .. .. .	4	20	23.168

$$\begin{array}{rcl} \text{Mean R. Ascension of Sirius, April 24 B. C. 4004} & 2 & 17 & 34.152 \\ & = & 34^\circ & 23' & 32''.280 \end{array}$$

In like manner we have the Declination of Sirius,

A. D. 1837, April 24 .. .. .	16	29	54.255
Subtract 58.4 centuries (sign changed)..	- 10	56	13.28

$$\text{Declination of Sirius April 24 B. C. 4004} \quad \dots \quad 27 \quad 26 \quad 7.533 \text{ S.}$$

Such then being the mean Right Ascension and such the Declination of Sirius at this time, it is easy to see even from the globe, that, if the sun was setting at 6 P. M. on April 24 (= 25) B. C. 4004, Sirius must have been setting at or about 7 P. M.: that is, as nearly as possible under the precise circumstances, which would be understood to be meant by those of its setting heliacally.

origin of the existing system of things than another, it was Sirius. And this, we have no doubt, is the true explanation of the peculiar estimation in which this star appears to have been held in the east, as the object of so much reverence and of so much dread; and why so many of the nations of old, especially in the east, displayed a marked and significant desire to attach their calendar, and the reckoning of civil annual time among them, to the heliacal rising of Sirius: a fact which is attested by their calendars themselves.

No people however of former times had preserved a more authentic tradition, on all these points, than the Egyptians. None were more aware that true mundane time had always been dated from the vernal equinox: none were better acquainted with the true *natale mundi* itself: none possessed a more perfect chronology of the age of the world. If they dissembled their better information concerning these things, and even, in the course of time, perverted and misrepresented the truth; they had their motives for doing so. It answered their purpose in later times to transfer the *natale mundi* from the vernal equinox to the summer solstice; but even so, only from the heliacal setting of the same star, which they knew to have been in the ascendant at the beginning of the present system of things, to the heliacal rising.

The Egyptian Isis was worshipped at Saïs in Egypt under the name of Neith: at Atarbechis or Aphroditopolis under that of Hether, Hathor, Athor, or Athyr: but whether Isis, or Neith, or Athyr, the same person was meant, of which Isis was the first and original conception\*. Now it

\* The Egyptian Neith, as all writers on the theology of Egypt have observed, is the original of the Grecian Athena. Athena is merely the Egyptian Neith read backwards, ΘΗΝ for ΝΗΘ. Saïs being the principal city of Neith in Egypt, and Neith universally considered by the Greeks to be the same with their Athena; this seems to have been the reason why, as we are told in the Scholia on Lycophron, ver. 111, ἀκτῆς, Charax took Saïs itself to be only another Egyptian name for Minerva: Σαῖς δὲ κατ' Αἰγυπτίους ἡ Ἀθηνᾶ λέγεται, ὥς φησι Χάραξ. That the Egyptian Neith was the true prototype of their own Athena was known to Plato: Opp. pars iii. vol. ii. 12 (=21), 1-8. Timæus: (cf. Proclus in Timæum, i. 68=30. C.) Hence Arnobius, (where Minerva is speaking,) iv. p. 137: Quod si fidem inquiris facti, Ægyptios et ego testes dabo: quorum sum

appears from the sculptures, and from the hieroglyphical inscriptions which have been deciphered<sup>e</sup>, that each of these goddesses, Neith and Athyr, in particular was set forth and represented under the image of the “cow which brought forth the sun,” “the great cow, the mother of the sun,” “the engenderer of the sun<sup>e</sup>.” And when it is known that each of these conceptions was a type of Isis, and that Isis herself had also the name of Sothis; it must appear a rational and consistent explanation even of these peculiar and high sounding titles, to understand them with a specific reference to the fact just pointed out; viz. the actual ascendancy of Sothis or Sirius, at the beginning of the existing system of things.

The Egyptians were well aware that, if Sirius was setting heliacally at or near to the vernal equinox A.M. 1, it would be rising heliacally at or about the summer solstice; and they were able to calculate that, if the primary date of the vernal equinox was falling at the beginning of Thoth, the first heliacal rising of Sirius in connection with the present system of things would be falling very near the end of Athyr, the month in their calendar sacred to Isis herself, and, according to Plutarch<sup>f</sup>, in the capacity of *Mouth* and *Methuer* as much as of *Athyrei* or *Athyr*; the former denoting, (as he tells us,) simply *mother*; the latter, the *full* and the *causative*, (πλήρης and αἰτίας); and therefore both together a very proper title for such a mother as the first cause of all things, the *magna mater* and *alma parens rerum* κατ’ ἐξοχήν. And this being the case, it was natural that, as soon as they had

Neith lingua, Platonis testificante Timæo. But that Neith herself, and even at Sais, was only another form or representation of Isis, appears from Plutarch, De Iside et Osiride, ix; and from the inscription on her image there, which was proper only for Isis: Τὸ δ’ ἐν Σάει τῆς Ἀθηνᾶς, ἥν καὶ Ἰσιν νομίζουσιν, ἔδος ἐπιγραφὴν εἶχε τοιαύτην· Ἐγὼ εἰμι πᾶν τὸ γεγονός, καὶ ὄν, καὶ ἐσόμενον· καὶ τὸν ἐμὸν πέπλον οὐδεὶς πω θνητὸς ἀπεκάλυψε. Cf. also cap. lxii—which explains the meaning of this name of Neith, so applied to Isis, as if denoting ἡλθον ἀπ’ ἐμαντῆς: “the self-derived.” Proclus in Timæum, i. 69=30. E, adds to the above, from the inscription; Ὁν ἐγὼ καρπὸν ἔτεκεν ἡλῖος ἐγένετο.

<sup>e</sup> Egyptian Antiquities in the British Museum, part i. p. 12. 20: Bunsen, i. 385-387. 400-402: Wilkinson, second

series, ii. xiii. 67, 68.

<sup>f</sup> De Iside et Osiride, lvi.

conceived the idea of their Isis, they should translate her to Sirius; and should identify Sirius with her as equally concerned with herself in the work of universal production. From this star and from Isis even their own world was but an emanation: so that this star might well be called the star of conception; the junction of which with Isis, or rather its identification with Isis, made it the star of production also, and Isis the mother of all things, even of the sun itself.

SECTION XII.—*Application of the above conclusions to the Sothiacal period.*

If then the Egyptians had any measure of duration, any period properly so called, which depended on the phenomena of this star; the epoch of this period would naturally be fixed to the first appearance of the star for their climate in the morning twilight: and it would be as proper and as consistent to call this period the Sothiacal period in the Egyptian language, as the *Κυνική περίοδος* in Greek, the *Periodus Canicularis* or *Canaria* in Latin, or the Period of the Dog-star in English; all meaning the same thing; viz. the interval comprehended between one appearance of this star in the morning, under certain circumstances, and its appearance again in the morning under the same.



## CHAPTER II.

*On the epoch of the Sothiacal period of the Egyptians.*

SECTION I.—*On the measure of the Sothiacal period.*

THE equable year of 365 days, and the Julian year of 365 days every three years, and of 366 days every fourth, being supposed to begin together on any given day in the Julian year; we have often observed that the former will recede, fall back, or lose, as it may appear, in comparison of the latter, one day every four years.

That is, the equable year and the Julian beginning together on the first of January at midnight; at the end of four equable years, the equable year will be found to be begin-



ning on December 31 at midnight; while the Julian, at the end of four Julian years, is still beginning on January 1 at midnight, as before. At the end of eight equable years, the former will be found to be beginning December 30 at midnight; at the end of eight Julian, the latter will still be beginning January 1 at midnight, as before.

The recession of the equable year on the Julian will continue to proceed at the rate of one day every four years: so that at the end of 120 years of equable annual time it will be found to have accumulated to 30 days, or to one entire month of equable time; and the first of Thoth in the 121st equable year, instead of falling on January 1 at midnight, will now be falling on December 2 at midnight.

In  $120 \times 6$  or 720 equable years the recession will amount to 180 days; i. e. 6 months of equable time; and the first of Thoth, at the beginning of the 721st equable year, will be found to have fallen back to July 5 at midnight; while the first day of the 721st Julian year is continuing attached to the first of January at midnight, as at first.

In  $365 \times 4$  or 1460 Julian years, the recession will amount to 365 days, or one equable year itself. Consequently in 1460 Julian years, such as we began with supposing, the first of Thoth will again be found falling on January 1 at midnight, as before. But it must be evident that this will be the case not at the beginning of the 1461st equable year, but at that of the 1462d: in other words that in this interval of 1460 Julian years, from the incidence of the equable Thoth on January 1 at midnight once before, to the incidence of the equable Thoth on January 1 at midnight again, there will be 1461 equable years of no more than 365 days each, though there will be only 1460 Julian years of 365 days every three years and of 366 every fourth.

This period then of 1460 Julian, and 1461 equable, years is a necessary effect and consequence of two such different things as a fixed annual measure of 365 days every three years and of 366 days every fourth, and a fixed annual measure of 365 days perpetually; when the one is constantly referred to the other, the lesser to the greater. It measures and defines the absolute interval of time in years of each description, which must elapse before an annual standard

like the latter, having once set out in a certain state of relation to an annual standard like the former, can return to the same state of relation to it again.

When therefore we meet with the mention of this period, whether with or without an express reference of one of these standards to the other, it must always be understood with such a reference. It cannot have any meaning without it: 1460 Julian years will always imply 1461 equable years, and 1461 equable years 1460 Julian: and each must be understood with this reference to the other accordingly, whether it is so exprest or not.

Now we meet with this period in Tacitus<sup>g</sup>, as one of the supposed measures of the Phœnix cycle of the Egyptians. We find it in Firmicus<sup>h</sup> as one of the measures of the Annus magnus, in the sense of the time required for the restitution of the sun and the moon, and the five planets, relatively to each other; and in opposition to another great year of 300,000 years<sup>i</sup>: *Quantis etiam conversionibus major ille quem ferunt perficeretur annus qui quinque has stellas lunam etiam ac solem locis suis originibusque restituit: qui mille quadingentorum et sexaginta unius annorum circuitu terminatur.* And in both these instances it is observable that the length of the period is exprest in terms of the equable year. We meet with this period of 1461 years also in Dio Cassius<sup>k</sup>, as the interval of time for which, in his opinion, the calendar reformed by Cæsar would stand in no need of a fresh correction, but at the end of which, as he appears to have thought, it would require an additional correction of a day. We find it in Bede, under its proper name, as the measure of the Annus cynicus<sup>l</sup>: *Caniculares dies esse dicuntur, de principio leonis usque ad medietatem, per quindecim dies. si vero canicula cum sole fuerit ardorem designat. Sirius illa dicitur in Græco, et est cynicus annus, a κυνός, qui est canis, 1160 (corr. 1460) anni.* It occurs in Chalcidius in Timæum<sup>m</sup>: *“Cum hanc eandem stellam ἀστροκύωνον quidam, Ægyptii vero σολεχὴν (lege Σώθην or Σῶτιν), vocent:*

<sup>g</sup> Annales, vi. 28.

<sup>h</sup> Lib. i. Præfatio.

<sup>i</sup> Lib. i. Præfatio, cf. iii. 1.

<sup>k</sup> xliii. 26. cf. Gaza de Mensibus, x. Uranolog. 298. B. C.

<sup>l</sup> i. 391. Mundi Constitutio: De Constellationibus.

<sup>m</sup> Ed. Meursii p. 218. cf. Fabricius, (Hippolyti Opp. Hamburgi. 1716) Chalcidii in Timæum Comm. cxxiv. p.

cujus completur, annus qui κυνικὸς vocatur annis mille quadringentis sexaginta." Lastly, it occurs in Syncellus<sup>n</sup>, entering along with another factor, 25, into the great period of 36,525 years, the Annus magnus or Ἀποκατάστασις κοσμικὴ of the books, designated by him as the Mercurii Genica and Kyrannides, and according to Manetho himself the Βίβλος τῆς Σώθειας. This Annus magnus is the product of 1461, the measure of the Sothiacal period in equable annual time, and 25, the measure of the Apis cycle; and these 36,525 years, so composed of 1461 cycles of 25 years and 25 cycles of 1461 years, are so many equable, not so many Julian, years.

SECTION ii.—*On the epoch of the Sothiacal period.*

i. *The equable or cyclical.*

In each of these instances it must be evident from the numbers themselves that the period is meant of the restitution of annual and noctidiurnal equable time in terms of Julian; though there is no intimation in any but the three last, (from Chalcidius, Bede, and Syncellus,) which connects this restitution with the Sothiacal period; that is, with the interval, whether in equable or in Julian time, between one appearance of the dog-star, under certain circumstances, and on a certain day in the equable year, and the next, under the same circumstances, and on the same day, also.

This desideratum is most completely supplied by Censorinus: and, though his testimony is no doubt familiar to many of our readers, yet, because of its importance to the present question, we must beg leave to lay it before them in his own words<sup>o</sup>.

Ad Ægyptiorum vero annum magnum luna non pertinet; quem Græce κυνικόν, Latine canicularem vocamus, propterea quod initium illius sumitur quum primo die ejus mensis quem vocant Ægyptii Thot Caniculæ sidus exoritur. nam eorum annus civilis solos habet dies ccclxv, sine ullo interkalari. itaque quadriennium apud eos uno circiter die minus est quam naturale quadriennium: eoque fit ut anno

324: where the reading is ἄστρον κυνικόν for ἀστρόκυνον, and Σώθειν for σολεχῆν.

<sup>n</sup> 64. 2—9: cf. 95. 9—97. 14: 72. 14—73. 19.

<sup>o</sup> De Die Natali, xviii.

MCCCCCLXI<sup>o</sup> ad idem revolvatur principium. hic annus etiam ἡλιακὸς a quibusdam dicitur, et ab aliis ὁ θεοῦ ἐνιαυτός.

The *naturale quadriennium*, here alluded to, is the cycle of leap year in the mean Julian year, and very possibly, in the opinion of Censorinus<sup>p</sup>, in the mean natural year also, as differing from the mean Julian, if at all, only by an inappreciable quantity. It is at least here supposed by him, that the equable year of 365 days fell one day short of the mean natural year, as much as of the mean Julian, every four years. And as at the beginning of this passage he called this period of 1460 years the annus cynicus, and at the end he styles it ὁ θεοῦ ἐνιαυτός, we might at first sight suspect a corruption in his text of ὁ θεοῦ ἐνιαυτός for ὁ Σώθου ἐνιαυτός; did it not appear from a subsequent allusion to the same thing<sup>q</sup> that ὁ θεοῦ ἐνιαυτός was the true reading here after all. Yet, whether as the θεοῦ ἐνιαυτός or the Σώθου ἐνιαυτός, there can be no doubt that the Canicular period only can be meant in either case<sup>q</sup>.

It appears then that Censorinus recognises the annus cynicus or canicularis of the Egyptians as something well known in his own time; and though he calls it a year, it is manifest that he means a complex of years by it, (not less than 1460,) in the ordinary sense of the term. We need not be surprised at his applying the name of *one year* even to a *period* of years; especially to one of this kind. The Egyptians themselves appear to have regarded it in the same light, and to have spoken of it in the same way, as the divine year, or year of the god<sup>q</sup>. We learn too from Horapollon<sup>r</sup>, that they gave the name of a year to *four* years, that is, to the cycle of the Julian leap year: for, speaking of the crow, as the hieroglyphical symbol of the *justa mensura* of human life, he observes; Αὕτη γὰρ ζῆ ἐκατὸν ἔτη κατ' Αἰγυπτίους· τὸ δὲ ἔτος κατ' Αἰγυπτίους τεσσάρων ἐνιαυτῶν.

We perceive also that Censorinus speaks of the proper beginning of this period likewise as something well understood; viz. the time of the visible appearance of the dog-star on the first day of *that* month which the Egyptians called *Thot*: and though he does not further explain himself here

<sup>p</sup> xx. ad. fin.

<sup>q</sup> xxi.

<sup>q</sup> Cf. Horapollon, i. 5.

<sup>r</sup> ii. 89.



by informing us that *this* month was the *first* in their calendar, he gives us to understand as much in a subsequent chapter<sup>s</sup>, where he is speaking of certain æras in use in Egypt, yet reckoned from the first day of this month Thot, or Thoth, in the Egyptian calendar.

According to Censorinus therefore, the proper beginning of the Sothiacal period, in the proper equable style of the reckoning of annual time, was the first day of the first Egyptian month Thoth; but not under *any* circumstances; only when the rising of the dog-star (the *heliacal* rising) was observed to be taking place on the morning of that day in the equable year. And this rising of the dog-star itself being a stated and regular phenomenon, attached to the same season of the natural year; but the first day of the equable reckoning of time, referred to any fixed and invariable term, being necessarily variable, and incapable of preserving the same relation to such a term for more than four years in succession; it is manifest that this coincidence, having once been observed to happen under certain circumstances, could not be perceived to be happening again, under the same circumstances, until the first day of the equable reckoning, referred to that season of the natural year to which the rising in question was constantly attached, had made a complete revolution of the natural year. That is, it could not happen again in less than 1460 mean natural or mean Julian years.

### SECTION III.—ii. *The Julian.*

The stated equable date of the Sothiacal period has thus been made known by the testimony of Censorinus. The Julian is still a desideratum.

Let us turn however to the sequel of his testimony, where he is speaking of the æra of Nabonassar, and of that of Philip<sup>t</sup>: and we shall find this omission also supplied.

Sed horum initia semper a primo die mensis ejus sumuntur, cui apud Ægyptios nomen est Thoth; quique hoc anno fuit ante diem vii kal. Julias; cum abhinc annos centum Imperatore Antonino Pio ii et Bruttio Præsente Coss. idem dies fuerit ante diem xii kal. Augusti: quo

<sup>s</sup> xxi.

<sup>t</sup> Cap. xxi.

tempore solet Canicula in Ægypto facere exortum. quare scire etiam licet anni illius magni, qui, ut supra dictum est, et solaris et canicularis et dei annus vocatur, nunc agi verentem annum centesimum.

The date of this work of Censorinus', (as he informs us himself in this chapter,) was the consular year of Ulpian and Pontianus, U. C. 991, A. D. 238, answering to Nabon. 986; when the 1st of Thoth actually fell on vii kal. Julias, June 25, as he says it did. The hundredth year of the same æra before this began Thoth 1 Nabon. 887, July 20 A. D. 139, U. C. 892, in the consular year of Imp. Antoninus Pius ii and Bruttius Præsens. All this proves clearly that he must have been penning this treatise some time between June 25 A. D. 238 and Jan. 1 A. D. 239. But it has also given occasion to suspect an error of reading in his text, as it stands at present, xii kal. Aug. the supposed date of Thoth 1 Nab. 887: for that means July 21 in the Roman reduced to the Julian style, not July 20, the true Julian date of Thoth 1 Nab. 887.

Learned men therefore have proposed to correct his text in this instance, by reading xiii kal. Augusti, instead of xii kal. Augusti. But there is no authority from MSS. for any such correction: nor do we believe it to be necessary. It has never yet been known to the learned, that in this particular year, U. C. 892, A. D. 139, the Roman kalends were just one day behind the Julian: and consequently that xii kal. Aug. July 21 Roman was the same thing as July 20 Julian. This date of xii kal. Aug. in connection with the heliacal rising of Sirius, A. D. 139, was no doubt handed down to Censorinus' time from actual observation of the fact; and as the date which held good at the time: and he has faithfully reported it just as he had received it; though in his own time July 21 Roman did not differ from July 21 Julian.

The full explanation of this point indeed must be reserved for the Roman calendar. We have said enough however to convince the reader that to correct the text of Censorinus in this instance would probably be only to corrupt it; yet without any prejudice to the fact that whatsoever the Roman date of Thoth 1 Nab. 887 might be, its Julian date neither was nor could have been any thing but July 20 A. D. 139.

SECTION IV.—*On the Julian date of the rising of Sirius in Egypt, determinable by calculation.*

The integrity of the text of Censorinus then in this instance, so far as concerns the Roman date specified by it, and yet the identity of that date itself with the Julian July 20, A. D. 139, being both taken for granted; we are most concerned at present with the remark subjoined to this date, as if casually and inadvertently: “*Quo tempore solet Canicula in Ægypto facere exortum.*”

If this observation is to be referred to the date just mentioned, xii kal. Aug. = July 20; it follows that the stated date of the rising of Sirius in Egypt, (the heliacal rising; for of none other can Censorinus be supposed to be here speaking,) must have been July 20. The words are, *Quo tempore solet Canicula in Ægypto facere exortum.* They connect the rising of Canicula and this date of July 20, as a stated and regular coincidence of things in Egypt. Remembering then what he himself told us just before, that the Annus canicularis itself began when the first day of the equable Thoth was falling on the stated date of this phenomenon, and was completed when it was returning to it again; we must of necessity infer that one of these periods had just come to an end, or one was just beginning, July 20 A. D. 139, when this stated date of the heliacal rising in question, and this first day of the equable Thoth, were thus meeting together.

The fact of the coincidence itself, and the consequent truth of this statement of Censorinus, have often been put to the test of calculation. Petavius instituted a calculation of this kind<sup>u</sup>, by which he determined the cosmical rising of Sirius, for the meridian of Heliopolis, A. D. 139, to Cancer 12°. 9', July 4 or 5: and the heliacal rising to Cancer 25°. 33', July 20 in the morning. Bainbrige found the place of Sirius for the same latitude, in the same year, the 26° of Cancer also; and the date of its first appearance in the morning July 20 too<sup>v</sup>. Mr. Ideler, in modern times, has entered into various calculations of the same description,

<sup>u</sup> Uranologium, Variæ, lib. v. vi. p. 203.

<sup>v</sup> De Anno Caniculari: Problema v. 72, 73. “Johannis Bainbrigii . . . Ca-

nicularia, una cum demonstratione ortus Sirii heliaci pro parallelo inferioris Ægypti: auctore Joh. Gravio.” Oxon. 1648.

designed to ascertain the date of the heliacal rising of Sirius for the meridian of Memphis, at the supposed epochs of two or three different Sothiacal periods; and of this of A. D. 139 among the rest<sup>w</sup>: which he determines, like both his predecessors, to July 20 in the morning. But the most recent as well as most elaborate of these calculations, which has happened to come to our own knowledge, is that of Mons. Biot, in the fourth volume of his *Traité Élémentaire d'Astronomie Physique*, Paris, 1841–47: the result of which too is to determine the date of the phenomenon, for the meridian of the ancient Memphis, to July 20, 3 h. 19 m. 18 s. A. D. 139<sup>x</sup>.

The truth of the statement of Censorinus then, that the heliacal rising of Sirius in Egypt, A. D. 139, was observed to have taken place both on Thoth 1 and on July 20, may be considered abundantly confirmed by the test of calculation. And this being an intimation, or by the learned hitherto having been construed into an intimation, that one period of 1460 Julian years (the stated interval between one case of a coincidence of this kind, and the last of the same kind before it) was coming to an end in A. D. 139; their attention was naturally directed to the proofs of the same coincidence at the beginning of this period, 1460 years before A. D. 139; that is, B. C. 1322: and whether these three things, the first day of the equable Thoth, the 20th of July, and the heliacal rising of Sirius, were all meeting together, for the same meridian, in B. C. 1322. This problem too has been repeatedly solved, and with the same results<sup>y</sup>: all such as to determine the heliacal rising in question to July 20 B. C. 1322, as much as A. D. 139\*, and all to the first of the Nabonassarian Thoth in that year too.

\* The mean natural year being less than the mean Julian by a stated quantity, 11 m. 9 sec. 36 th. of mean time; its excess over the equable year of 365 days is less in proportion than that of the Julian. The equable year therefore does not fall back on the mean natural at the same rate as on the mean Julian. It requires a longer interval of time to bring back a given equable term to a given natural one, than to a given Julian one.

M. Biot, assuming Delambre's standard of the mean natural year,

<sup>w</sup> See Halma's Ptolemy, tom. iii. p. 32–37.

“*Recherches Historiques sur les Observations Astronomiques des Anciens*,”

<sup>x</sup> P. 634. § 437–641. § 441.

<sup>y</sup> See the references, as before.



SECTION V.—*On the dates of the heliacal rising of Sirius, according to various testimonies.*

It thus appears that calculation the most carefully made, how often soever repeated, fixes the date of this phenomenon for one and the same meridian, (that of the ancient Memphis or ancient Heliopolis,) to the same Ju-

365 d. 242264, (365 d. 5 h. 48 m. 51 sec. 6,) shews<sup>a</sup> that  $0\text{d}.242264 \times 1508 = 365\text{d}.334112$ : which is only  $0\text{d}.091848$  greater than one year of the above standard. The period of restitution of the equable year in a natural one of this standard would be 1508 natural years; in which there would be 1509 equable years, and  $.091848$  of a day over.

The standard of the natural year, which we assume, is  $365\text{d}.24225$ :  $0\text{d}.24225$  more than the equable year. Now  $0\text{d}.24225 \times 1507 = 365\text{d}.07075 = 365\text{d}.1\text{h}.41\text{m}.52\text{s}.48\text{th}$ . That is, in 1507 natural years of the standard of our Fasti there are 1508 equable years, and  $1\text{h}.41\text{m}.52\text{s}.48\text{th}$ . of one day over, but no more. The period of restitution of the equable year in the natural year of our Fasti would be 1507 natural years = 1508 equable; or nearly so. This will still more plainly appear, by the actual comparison of 1507 natural years of the standard of our Fasti and 1508 equable.

*Supplementary Tables.**Table of mean tropical years.*

y.	d.	h.	m.	s.	th.
1000	= 365,242	6	0	0	0
500	= 182,621	3	0	0	0
7	= 2,556	16	41	52	48
<hr/>					
1507	= 550,420	1	41	52	48
		— 11	9	36	
<hr/>					
		1	30	43	12

*Table of equable years.*

y.	d.
1000	= 365,000
500	= 182,500
8	= 2,920
<hr/>	
1508	= 550,420

It would appear to be a necessary consequence of this fact that, if the first of the equable Thoth, æra cyc. 1, at midnight, coincided with the mean vernal equinox, A. M. 1, at midnight, the 1st of Thoth, æra cyc. 1509, at midnight, should be found coinciding with the mean vernal equinox, A. M. 1508, at midnight, within  $1\text{h}.41\text{m}.52\text{s}.48\text{th}$ : or at least, since mean tropical time is reckoned in our tables, as they stand at present, from  $11\text{m}.9\text{s}.36\text{th}$ . before midnight<sup>b</sup>, within  $1\text{h}.30\text{m}.43\text{s}.12\text{th}$ . of midnight, A. M. 1508.

To ascertain whether this was the case or not, we must refer to our General Tables; and there we find that the mean vernal equinox, A. M.

<sup>a</sup> *Traité Élémentaire d'Astronomie Physique*, iv. § 29. p. 50.

<sup>b</sup> See the Introduction to the Tables.

lian term, July 20, from A. D. 139 as far back as B. C. 1322, or downwards from B. C. 1322 as low as A. D. 139:

1508, was entering April 13, 1 h. 30 m. 43 s. 12 th. after midnight—which so far agrees with the above presumption: but in æra cyclica 1509, which answers to this year, we find Thoth 1, reckoned according to the Julian rule, entering April 24 at midnight, 11 days later than April 13 at midnight.

The explanation of this phenomenon involves the entire question of the true theory of time of every kind, noctidiurnal and hebdomadal and annual, natural, equable, and Julian; of which we have said enough in the preceding part of our work. Equable time is nothing but the constant succession of noctidiurnal: natural annual time is something very different from that. The order of day and night is the order of feriæ. There are stated times, (viz. at the ingresses of our several Julian periods,) when the natural year drops two terms in the order of feriæ at once. The equable year never drops more than one. There must be a difference then between the Julian date of the first term in the natural year, and the first in the equable, at the end of 1507 years of the one, and of 1508 of the other, in proportion to the number of these periods through which both have passed meanwhile. And this is confirmed by what is observed to hold good in the present instance. The difference in integral days between Thoth 1 æra cyc. 1509 April 24 at midnight, and the Tabular vernal equinox, A. M. 1508, April 13, 1 h. 30 m. 43 s. 12 th. is 11: and that is the number of periods also, between A. M. 1 and A. M. 1508.

If however we compare 1507 natural years and 1508 equable, after A. D. 225, Nab. 972-973, we shall find this difference disappear. The date of our Tabular vernal equinox, A. D. 225, was March 21, 5 h. 24 m. 21 s. 36 th., answering to Pachon 27 Nab. 972, at the same number of hours from midnight.

A. D.		h.	m.	s.	th.	Nab.		h.	m.	s.	th.
225	March 21	5	24	21	36	972	Pachon 27	5	24	21	36
1507	—	12 + 1	41	52	48	1508		+ 1	41	52	48
1732	March 9	7	6	14	24	2480	Pachon 27	7	6	14	24

And our Tables accordingly shew the vernal equinox A. D. 1732, March 9, 7 h. 6 m. 14 s. 24 th; and Pachon 27, Nab. 2480, on March 9 also.

This is demonstrative proof that, when both the mean natural annual time and the equable noctidiurnal and annual time of our Tables begin to proceed in the same manner relatively to every thing else and to each other perpetually, the period of the restitution of the latter in terms of the former is 1507 mean natural years, 1508 equable years, within 1 h. 41 m. 52 s. 48 th. only.

On this principle, it might be assumed that as 1461 equable years =

which in itself is a very remarkable circumstance, and, until the reasons of the fact are explained, is well calculated to

1460 mean Julian, so 1508 equable years = 1507 mean natural; though the equation in the former case is complete, in the latter it is not complete: it only approximates to completeness. In like manner, 1425 equable years = 1424 sidereal years: as may be shewn from our Tables of both kinds of time.

*Supplementary Tables.*

*Table of mean sidereal time.*

y.	d.	h.	m.	s.
1000	= 365,256	8	39	27.454
400	= 146,102	13	3	46.982
20	= 7,305	3	3	11.349
4	= 1,461	0	36	38.270
<hr/>				
1424	= 520,125	1	23	4.055

*Table of equable time.*

y.	d.
1000	= 365,000
400	= 146,000
20	= 7,300
5	= 1,825
<hr/>	
1425	= 520,125

The difference in this case is only 1 h. 23 m. 4 s: even less than between 1507 mean natural and 1508 equable years.

Some learned men and astronomers, as Mr. Ideler observes<sup>c</sup>, have taken occasion from this circumstance to charge the ancient Egyptians with mistaking the true length of their Sothiacal period, by as much as 36 years, the difference of this period of 1424 mean sidereal years and that of 1460 mean Julian years: contending that the sun would necessarily return to a state of conjunction with Sirius at the end of 1425 equable years, 1424 sidereal. This is true: but, as Mr. Ideler justly observes, it has nothing to do with the theory of a period like the Sothiacal, which is based on the relation of the equable year to the mean Julian, not to the sidereal. The date of the heliacal rising of Sirius for any of the latitudes of Egypt may be assumed to have been fixed and invariable. It has been found at least, *de facto* and for the particular meridian of Heliopolis or Memphis, always attached to the same Julian term; from July 20–22. A fixed Julian term must fall on every day in the moveable year in its turn; and on one after another; rising one day higher and higher in the equable notation every four years. If we suppose it to begin with falling 9 days before Thoth 1, that is, on Mesore 27; four years after it will be falling on Mesore 28, eight years after on Mesore 29, and so on: and 36 years after, on Thoth 1.

Now any of these dates might be made the epoch of a period, which was founded on nothing but the simple *fact*, and the simple observation of the *fact*, of the coincidence of a given phenomenon, (which was only attached to some fixed date,) with one of these terms in the moveable year: and the period itself would be measured in each case alike by the interval between the first instance of a coincidence of this kind, and the next in

<sup>c</sup> Ptolemy, Halma, iii: *Recherches Historiques sur les Observations Astronomiques des Anciens*, p. 38. He means Dupuy, Lalande, and Pfaff.

excite surprise. For this explanation, as given by the astronomers, we refer to the preceding note. Had we been left

order to it, under the same circumstances. It is manifest that the idea of the Sothiacal period must have been first conceived in this manner; from the observation of one such coincidence as this, and from the contemplation of the next of the same kind, and of the interval necessary to bring it about. It implies (in its very conception) a knowledge of the Julian reckoning of time, and a just and accurate idea of the relation of equable to Julian time perpetually; but it does not necessarily imply any reference to the mean sidereal year; not even as supposed to be the same with the mean Julian.

It is a necessary consequence too of the nature of such a period, that its *epoch* must be *arbitrary*. There is no natural epoch of such a period as the Sothiacal: none but what must be from choice, and by appointment; in one word *positive*. The first day of the equable year indeed was more likely to be selected for the purpose than any other: and therefore, howsoever long the Egyptians might have been employed in observing the coincidence of such a stated phenomenon as the heliacal rising of Sirius with the different days in their equable year one after another, before the commencement of their Sothiacal period; they might naturally wait, to begin the actual reckoning of the period itself, until the phenomenon in question was observed to be coinciding with the 1st of Thoth.

The Sothiacal period is consequently a period of a certain number of equable and of a certain number of mean Julian years. In Nabonassarian equable years it is 1461: and in the corresponding number of mean Julian it is 1460. In cyclical equable years it is something more. If the definition of the Sothiacal period is That number of years which brings the same equable date back to the same Julian perpetually; in cyclical equable years it cannot be less than 1504. The cyclical Thoth A. M. 1, æra cyc. 1, was coinciding with April 25 at midnight. It did not begin to coincide with the same Julian term again, until æra cyc. 1505, though it continued to do so down to æra cyc. 1508. The next case of the same kind of coincidence was æra cyc. 3014: 1509 years after the second. The fourth was æra cyc. 4526 exeunte; 1513 years after the third: the fifth Epagomene at this time representing the 1st of Thoth, just as April 24 was representing April 25. The fifth case of the same kind cannot occur within the compass of our tables at least. That the period was not uniform in each of these instances is due to the alternation of our Julian periods; which does not follow a fixed and invariable rule.

These examples are sufficient to prove that true equable time, in the sense of cyclical, which has never varied from itself since the beginning of things, in connection with Julian has been subject to a different law from simple Nabonassarian perpetually. Whether the ancient Egyptians were aware of this distinction, before they conceived the idea of their Sothiacal period, is a difficult question to decide: yet we are strongly inclined to believe that they were; and had been made acquainted with it



however to collect the date of the phenomenon from testimony merely, distinct too from that of Censorinus, we

by long and careful observation, and especially by the constant reference of their equable calendar itself to so stated and regular a phenomenon as the heliacal rising of Sirius, which was to all intents and purposes the same thing as a fixed and invariable Julian date.

Notwithstanding this however, it is still true that there was always such a thing as a Sothiacal period of 1461 equable, 1460 mean Julian, years, in the equable style of our Fasti itself perpetually. The Nabonassarian type of equable time accompanied the cyclical from the first : and where-soever that type has place this period has place too. The first Nabonassarian term was Mesore 10 ; which A. M. 1 and æra cyc. 1 was agreeing both to April 25 at midnight and to Thoth 1 at midnight. A. M. 3333 æra cyc. 3335 B. C. 672, when April 25 dropped to April 24 at midnight, this Nabonassarian term dropped from Mesore 10 to Mesore 9 at midnight. But if we may assume that the proper Nabonassarian epoch of every Sothiacal period, from the beginning to the present day, in its own style has been either Mesore 10 or Mesore 9, and the proper Julian one April 25 or April 24 perpetually ; the following scheme will shew that these periods have been of uniform length, 1461 years in the equable, 1460 in the Julian, reckoning of annual time perpetually. All that is necessary to be further observed in reference to this point is that there is also a cyclical term, at the beginning of each of these periods, answering to April 25 at one time, and to April 24 at another ; which is in fact the true epoch of each of these periods in the equable style for the time being ; and that the Nabonassarian one, Mesore 10 or Mesore 9, at the same point of time is so only because it agrees with this ; because it is the Nabonassarian exponent of this. This cyclical term is necessarily a different one, at each of these times : the Nabonassarian one is nominally always the same, as much as the Julian. And yet in reality the cyclical term is the only constant quantity in all these cases ; the Nabonassarian, though nominally invariable, is in reality always varying ; yet so as still to preserve the same relation to the cyclical.

*Scheme of the succession of Sothiacal periods of 1460 mean Julian, 1461 equable, years perpetually, from the beginning to the end of the tables of the Fasti Catholici.*

Period.	A. M.	B. C.	Æra Cyc.	Cyclical.	Nabonassarian.	Julian.
i.	1	4004	1	Thoth	1 Mesore 10	April 25
ii.	1461	2544	1462	Mesore	25 Mesore 10	— 25
iii.	2921	1084	2923	Mesore	13 Mesore 10	— 25
		A. D.				
iv.	4381	377	4384		Mesore 9	— 24
v.	5841	1837	5845		Mesore 9	— 24

The calculations which have been instituted to find the true Julian date

should probably have felt ourselves perplexed by opposite and conflicting statements. And though no statement *ab*

of the heliacal rising of Sirius, A. D. 139, B. C. 1322, B. C. 2782<sup>d</sup>, have brought a very remarkable fact to light; viz. that for some reason or other the Julian date of this phenomenon for a given latitude like that of Memphis has not varied for 3000 years before the Christian æra. It has always been this one Julian term, as so determined by calculation, July 20.

Such a phenomenon as that was not to be expected *a priori*. On the contrary, it must always have been supposed, prior to the proof of the fact to the contrary, that there could not be less than nine days' difference between the Julian date of this phenomenon at the beginning of one Sothiacal period, and the Julian date of the same at the beginning of the next.

In 1460 mean natural or mean Julian years, the longitudes of the fixed stars undergo a change of  $20^{\circ} 18' 21''.529$  at least:

#### Supplementary Tables.

Table of the annual increment of the fixed stars in mean longitude.

years.				
1000	=	13	54	29.541
400	=	5	33	47.816
60	=		50	4.172
1460	=	20	18	21.529

The mean motion of the sun over  $20^{\circ} 18' 21''.529$ , according to our tables also, would require 20 d. 14 h. 26 m. 24 sec. at least.

Tables of mean motion of the sun in longitude.

20 d.	=	19	42.776,64
14 h.	=		34.497,65
26 m.	=		1.067,78
24 sec.	=		0.016,43
20 d. 14 h. 26 m. 24 sec.	=	20	18.358,50 = $20^{\circ} 18' 21''.51$ .

The precession of the mean Julian on the mean natural or tropical year of our Fasti in 1460 years is 11 d. 7 h. 33 m. 36 sec.

Tables of Precession.

years.		d.	h.	m.	s.
1000	=	7	18	0	0
400	=	3	2	24	0
60	=		11	9	36
1460	=	11	7	33	36

And this being subtracted from the preceding, the difference is 9 d. 6 h.

<sup>d</sup> Ptolemy, Halma, iv. Recherches, &c. 1-38.

*extra*, in a case like this, could possess an authority equal to that of repeated astronomical calculations, uniformly agreeing

52 m. 48 sec. by which the Julian date of such a phenomenon ought to be retarded in the space of 1460 years\*.

The same result is obtained, and with still greater exactness, from our tables of mean annual sidereal time, and of mean Julian time.

Table of mean annual sidereal time.

years.	d.	h.	m.	s.
1000 =	365,256	8	39	27.454
400 =	146,102	13	3	46.982
60 =	21,915	9	9	34.047

1460 =	533,274	6	52	48.483
	533,265			

9 6 52 48.483

Table of mean annual Julian time.

years.	
1000 =	365,250
400 =	146,100
60 =	21,915

1460 =	533,265
--------	---------

The Sothiacal period of 1460 mean Julian years contains also nearly an integral number of mean sidereal days; as will appear from our table of the complement of the mean Julian year in mean sidereal time.

Julian years.

1000	=
400	=
60	=
1460	=

Sidereal complement.

	d.	h.	m.	s.
1000	0	30	33	298
400	0	12	13	319
60	0	1	49	998
1460	0	44	36	615

which being only 0 h. 44 m. 37 sec. greater than a complete number of mean sidereal days, or periods of 24 mean sidereal hours, a star, which passed the meridian in a given instance at the beginning of one of these periods of 1460 years at 0 h. 0 m. 0 s. of mean sidereal time, at the beginning of the next would pass it at 0 h. 44 m. 36 or 37 s. of mean sidereal time.

\* As a general rule, and where particular exactness is not required; the effect of precession in mean longitude may be assumed = 1 day in time in  $71\frac{1}{2}$  years, or 2 days in 143 years. Consequently it is sufficient to divide a given number of years by 143, and to multiply the quotient by 2; to get that effect, in a given instance, in time.

Thus  $\frac{1460}{143} = 10$ , with a remainder of 30, = consequently to 20 days, and about 10 hours of one more.

The precession in the natural year,

(i. e. of natural annual on mean Julian time,) is one day in 129 years.

$\frac{1460}{129} = 11$ , with a remainder of 41, that is, about 7 h. 30 m. more.

	d.	h.	m.
Hence from	20	10	0
Subtract	11	7	30

The remainder is 9 2 30; i. e. the amount of the precession of the Julian date in 1460 years; only 4 h. 23 m. less than what we got from the more exact calculation *supra*.

in the same result ; (much less contrary and contradictory statements ;) it may be proper briefly to notice these different statements before we resume the prosecution of our own inquiries.

Hephæstio Thebanus, for instance, dates the rising of

Petavius has some observations on this remarkable astronomical fact ; implying that he considered it to be something *κατὰ συμβεβηκός*, which could not always be the case : and he speaks of having calculated the heliacal rising for the beginning of the next period after A. D. 139 ; viz. A. D. 1599 ; and of having found it in the 9th degree of Leo August 19 or 20<sup>e</sup>. But Mr. Ideler has also calculated the same phenomenon for A. D. 1599, and determined it to July 22<sup>f</sup> ; only two days later than its date A. D. 139, July 20. And it would seem that July 20 was still reckoned its date in Egypt even later than A. D. 1599 : for a work is extant, ascribed to Schem Seddin, a native of Egypt, (born at Cairo Hej'ra 1005 A. D. 1596 or 1597,) composed by him in Hej'ra 1055, A. D. 1645-1646, of which an account is given in the Notices and Extracts from unpublished MSS. of the National Library at Paris<sup>g</sup> ; a rural and economical calendar, in which<sup>h</sup> we have the entrance of the sun into Leo dated Epiphi 21, July 15, and the rising of Sirius, Epiphi 26 July 20, its ancient date ; though according to Mr. Ideler the true date at this time was two days later.

We shall not attempt any explanation of this phenomenon ; which belongs to the astronomers. Certainly, it is peculiar apparently to Sirius, and common to none of the fixed stars besides. Mr. Ideler<sup>i</sup> seems to resolve it into the peculiar position of the star relatively to the circles of longitude and latitude, during the whole of the period for which its place has been calculated. Mr. Biot concludes his own calculation, for A. D. 139, with these remarks<sup>k</sup> :

“ C'est que par une combinaison singulière des éléments de position propres à Sirius, depuis plus de 3000 ans avant l'ère Chrétienne jusqu'à plusieurs siècles après cette ère, l'intervalle de temps compris entre deux levers héliaques consécutifs de cette étoile sur tous les parallèles de l'Égypte, étant calculé par les hypothèses de visibilité que nous avons admises, se trouve presque exactement de 365j. $\frac{1}{4}$  ; de sorte que la persistance de son lever héliaque à un même jour Julien fixe, qui n'est qu'approximative pour les autres étoiles, a été tout à fait exacte pour celle-là dans la longue étendue de temps que je viens de spécifier. Ainsi sous le parallèle de Memphis par exemple la date de le lever, calculée comme nous venons de le faire, coïncide toujours avec un 20 Juillet.”

<sup>c</sup> Uranologium, Variæ, lib. v. cap. vi. p. 203, 204. There is probably some error in the numbers here. Bainbrige or Gravius also, *Canicularia*, loc. cit. supra, determines the heliacal rising the same year to Leo 9° 14' ; and that must be some time about the 21st or 22d of July.

<sup>f</sup> Ptolemy, iv. Recherches, ut supra, p. 37, 38.

<sup>g</sup> Tome i. 165—280. By Sylvestre de Sacy.

<sup>h</sup> Ibid. 263.

<sup>i</sup> Recherches, ut supra, 37, 38.

<sup>k</sup> iv. p. 640. § 441.



Sirius Epiphi 25 in the Alexandrine calendar; i.e. July 19<sup>z</sup>. This too is the date assigned it by Dositheus, in the calendar of Geminus; i.e. the 23d day in Karkinon, July 19; and for Egypt also. Pliny has the rising of Sirius ἀπλῶς xv kal. Aug.<sup>a</sup> July 18; but this reading is probably in error for xvi kal. Aug. July 17: for he dates it also on the 23d day in Cancer: Sole primam partem Leonis ingresso—hoc fit post solstitium vicesimo tertio die: and as his date of the solstice is viii kal. Jul<sup>b</sup>. June 24, the 23d day from that date could not be later than July 17. The solar ingresses too in the Julian calendar being dated in octavis partibus, the ingress into Leo, on that principle, would be July 17 not July 18. He has another date, Exoritur Caniculæ sidus, sole primam partem Leonis ingrediente, xv (lege xvi) ante Augustas kalendas<sup>c</sup>; which also a comparison with the preceding proves to be meant of its rising in Egypt. Palladius has the ortus Canis apud Romanos xiv kal. Augusti<sup>d</sup>: July 19. Solinus, if not in so many words, yet by implication extends the date of the phenomenon over three days in the Roman style, xiii, xii, xi kalendas Augusti, July 20, 21, 22; which he characterises also as the tempus natale mundi, according to the priests of Egypt<sup>e</sup>. In the Geoponica<sup>f</sup>, we meet with a date, Ἡ τοῦ κυνὸς ἐπιτολὴ γίνεται διαφανούσης εἰκοστῆς Ἰουλίου μηνός, ascribed to Diophanes; who appears to have been the epitomizer of Dionysius of Utica, the translator of the Books of Mago the Carthaginian<sup>g</sup>; and whose own work was dedicated to king Dejotarus. Also with another ascribed to Zoroaster<sup>h</sup>; Ἔστι δὲ ἡ ἐπιτολὴ τοῦ κυνὸς τῇ 19 τοῦ Ἰουλίου μηνός. And, though neither of these is first and properly proposed of Egypt, or by writers professing to be Egyptians, yet the dates themselves are such as in all probability must have been derived from Egypt, and would properly be true, if at all, only of the heliacal rising of Sirius in Egypt.

Lastly, in Ptolemy, De Apparentiis<sup>i</sup>, there are five dates

<sup>z</sup> Apud Petavium, Uranologium, Variæ, lib. vii. 1. p. 252.

<sup>a</sup> H. N. xviii. 68. § 2. p. 229.

<sup>b</sup> Ib. 69. § 2. p. 229, 230: cf. 68 §. 1. 59.

<sup>c</sup> ii. 47.

<sup>d</sup> Rei Rusticæ SS. lib. vii. tit. viii. § ix.

<sup>f</sup> i. 8.

<sup>e</sup> Polyhistor, xxxii. 12, 13.

<sup>g</sup> Cf. Varro, De Re Rustica, lib. i. cap. i. § 10.

<sup>h</sup> ii. 15.

<sup>i</sup> Halma, iii. p. 13, 14: 49, 50. (Cf. the "Memoir" of Mr. Ideler, p. 3, 4, 7, 8; and his "Remarques," p. 6, 7. Fabricius Bibliotheca Græca, lib. iv. cap. xiv. 432–448: Geminus, Calendarium, Uranologium.

of the phenomenon, for five different latitudes, from the parallel of  $13\frac{1}{4}$  hours to that of  $15\frac{1}{4}$ , and from Epiphi 21 or 22 in the Alexandrine calendar, July 15 or 16, to Mesore 14 or 15, August 7 or 8. Of these however only the first, that of the parallel of  $13\frac{1}{4}$  passing through Syene, Epiphi 21, July 15, and that of the second, for the parallel of 14 hours, Epiphi 27 July 21, (or as Fabricius reads Epiphi 28 July 22,) passing through Alexandria, would be proper for Egypt. It follows consequently that in Ptolemy no notice is taken of the stated date of July 20; which appears to have been that of the phenomenon for the ancient Heliopolis or Memphis in Egypt more particularly.

SECTION VI.—*On the errors involved in the preceding assumptions, respecting the date of the Sothiacal period.*

The inquiries of learned men in modern times into the history of this celebrated Egyptian period, and into the circumstances characteristic of it, have hitherto been instituted without a proper knowledge of some things which were necessary to be known in order to arrive at the truth, and with a degree of uncertainty about others, concerning which there ought to have been no doubt; if this investigation was to be successfully conducted. It is not surprising therefore that, notwithstanding all the pains and labour which have been bestowed upon this subject, it is not yet properly understood: though it is very possible that in the opinion of the learned themselves the Sothiacal period of the Egyptians is that one of the antiquities of Egypt about which they may be considered to know most.

But in the first place, if they were to come to a correct conclusion with respect to this point of the *epoch* of the period, was it not necessary to begin with settling the question of the nature of the period itself? and whether it might not be a Julian period; a period connected with a Julian calendar; a period subject to the laws of the reckoning of annual and of noctidiurnal time according to the Julian rule? For if it was, it must have a cycle of leap-year: and if it had a cycle of leap-year, it must have a double Julian date, one in the leap-years of the cycle, the other in the common years. The principal date in such a period, the stated date of the rising of Sirius, could not be constantly

attached to one Julian term. From the necessity of the case it must be attached to two; one of them a day higher than the other; one of them the Julian date of the coincidence in the first year of the cycle, the other in the three last.

We say then, (and it appears to us that the reasonableness of the assertion cannot be disputed,) that, before the question of the proper Julian date of the Sothiacal period could be determined, the preliminary question, whether the Sothiacal period itself was not a Julian period, required to be first decided. If this question was to be decided in the affirmative, it would necessarily follow that the calendar epoch of the period must correspond to two Julian terms; one in the leap-years of the cycle, the other in the common years: one of which might be July 20, but the other in that case must be July 21. It would not follow from this distinction that the rising of Sirius itself must have had a double Julian date also, July 21 in the leap-years of the cycle, and July 20 in the common years; only that the period itself must have had such a double date, though professedly always associated with the same phenomenon of the rising of Sirius: and that the rising itself, as constantly associated with the epoch of such a period, must have been reckoned according to a cyclical rule, which might not always be agreeable to the truth, and yet could never vary more than one day from it.

It is not our intention to enter at present on this particular inquiry, whether the principle of the Julian year was known to the ancient Egyptians, or whether the actual Julian year was possessed by them in any form or shape; and from what point of time in their history. We have already declared our opinion on that subject<sup>k</sup>; and what we have still to say, in explanation of their peculiar cycles, we trust will confirm it and place it out of question. Yet this too is one of those points on which the learned have not yet come to an agreement, nor if left to themselves are likely to do so: and some of them have carried their doubts so far as to deny the Egyptians the knowledge of the Julian year even in theory, much more in use and effect; contrary to the plainest declarations of antiquity. On this question, so

<sup>k</sup> Diss. vii. ch. ii. sect. iii. vol. i. 551.

far as we have been able to judge for ourselves, there ought not to have been more than one opinion. With respect to the Sothiacal period at least; the Julian reckoning is involved in its very nature and constitution. The cycle of leap-year is essential to such a period. Its reckoning must be kept perpetually in cycles of four years, that is, in cycles of leap-years: and the very existence of such a period among the Egyptians is a demonstrative proof of the knowledge of the principle of the Julian year among them also; and from as far back as the existence of the period itself at least.

The first oversight then, which chronologers in general have hitherto committed, with respect to the date of this Egyptian period, is that of taking it for granted that it must be attached to one date, and that date the strictly astronomical one of the rising of Sirius, July 20; without considering that it might possibly have a double date, July 21 and July 20: though had it occurred to them to reflect that the period itself was a Julian one, and reckoned perpetually in cycles of the Julian leap-year, this distinction must have been recognised; and July 21 must long since have been acknowledged as the stated and regular date of the phenomenon in the cyclical or calendar reckoning thereof at certain times, as much as July 20 at others.

The next mistake under which the learned have hitherto laboured, who have undertaken to investigate the epoch of this period, is of a different kind from the preceding; and would have produced the same effect in misleading them, and in vitiating the conclusions at which they arrived, even if that had not existed. There is nothing perhaps, which a chronologer at the present day would say was more certainly to be taken for granted, than the astronomical date of the heliacal rising of Sirius, for the latitude of Memphis in Egypt, so repeatedly determined by calculation; viz. July 20. There is nothing indeed, which they would say was more implicitly to be relied upon, than such astronomical dates in general. And yet there is not a single astronomical calculation of this kind, which has ever been made beyond a certain point of time, by reckoning back from the present day, or ever shall be made, which has been or will be true without



a correction, amounting to a day; a correction which no astronomer has ever yet thought of applying to any such calculation hitherto instituted.

We assert this without fear of contradiction; after the explanation which has been given in the preceding part of our work of the necessity to which this correction is ultimately due; i. e. because of the effect of the two great miracles of Scripture upon the measures of time, and in particular on the cycle of day and night, and on the Julian signs or exponents by which every term in the uninterrupted representation of that cycle requires to be constantly expressed. We have shewn that the joint effect of these two miracles was such that, after B. C. 672, every Julian date of every astronomical phenomenon, (saving only those of the moon,) dropt one day in terms on what it must otherwise have been. And this effect has never been undone. It exists at the present day. It is still attested, and by the date of every phenomenon of the kind; even those with which we are most familiar.

It follows that in going back with such dates, and with the phenomena attached to them, beyond this epoch of B. C. 672, they must be raised one day in terms, to make them agree with the truth. If then calculation, so carried beyond this point of time from the present day, determines the date of the heliacal rising of Sirius, at the supposed epoch of a Sothiacal period, to July 20, without correction; it will now be understood that this is in reality July 21. It must be called July 21, and it must be treated as July 21; not as July 20. It makes no difference to the circumstances of the phenomenon, in any other respect; as determinable to the first appearance of the star in the morning twilight. The question is only whether this is in reality the morning twilight, July 20, or July 21. Calculation, without correction, answers July 20: calculation, properly corrected, answers July 21. The difference is after all nominal. But, in the continuous reckoning of Julian terms, it is and must be a difference of a day. July 20 can never be the same thing as July 21, or *vice versa*, July 21 as July 20: and whichever of these is the proper Julian date of such and

such a phenomenon under such and such circumstances, the other cannot possibly be so too.

This conclusion however being taken along with the other already established, that from the nature of the Sothiacal period itself it must have a double Julian date; it will follow that if these two Julian dates of origination after B. C. 672 were July 20 and 21, (July 20 in the common years of the cycle of leap-year, July 21 in the leap-years of the cycle,) before B. C. 672 they must have been July 21 and 22; the former in the common years of the cycle, the latter in the leap-years. And this conclusion, we trust, will be found to be confirmed by the matter of fact and by extant proofs; which can leave no doubt concerning it.

SECTION VII.—*On the true method of arriving at the epoch of the Sothiacal period, and on the true date of the period.*

The conclusion at which we have arrived, that, whensoever the idea of the Sothiacal period was first conceived in Egypt, yet from the nature of the period itself it must have a double Julian date; is sufficient to unsettle the received opinion respecting the date of that *one* such period at least, which is supposed to have come to an end July 20 A. D. 139, and to have begun July 20 B. C. 1322. Admitting the truth of the fact that its actual date A. D. 139 was July 20; we should still have to go back four years, (i. e. to A. D. 135,) to find the coordinate date, at the same time, July 21: and if we took into consideration the further fact that at the epoch of the period, B. C. 1322, so long before B. C. 672, July 20 must be assumed as the same thing with July 21, and July 21 as the same with July 22; we should see that even July 21 A. D. 135 would not represent the true date of origination of the period. It would be one day in defect of the truth.

But besides all this, we must not omit to mention the most common mistake which learned men have hitherto made in the investigation of this point; and yet the most inconsistent of all with the real state of the case, the most prejudicial of all to the discovery of the truth; viz. that in all such calculations as these without exception, so far as we

know, they have made use of the simple Nabonassarian type of equable time, instead of that type of the same species of time, which we have found it necessary to distinguish from it by the name of the cyclical. Now to carry back this type without correction in the constant reckoning of equable time, beyond a certain point, is just the same thing as to carry back the simple Julian rule of reckoning which is in use at present, without correction, beyond a certain point also; yet as the perpetual standard and measure of true Julian time. Neither of these things is allowable. Neither can be done without leading to consequences seemingly true indeed in theory but utterly false in fact: and the longer this course is persisted in with either more and more false, more and more remote from the truth. There is a limit which the simple Julian type of noctidiurnal and of annual time, carried back perpetually, cannot pass without immediately getting into error; and that limit is A.D. 225. There is a limit too, which the simple Nabonassarian type of noctidiurnal and of annual time cannot pass without becoming erroneous also; and that limit is B. C. 728.

The only consistent and unalterable type of Julian time, beyond A.D. 225, is the Julian type of our Fasti; itself merely the true Julian form of the natural type of the same thing perpetually: and the only invariable type of equable time, beyond B. C. 728, is the cyclical type of our Fasti too; the ultimate prototype and standard of which is the simplest and most elementary of the natural measures of time themselves, the noctidiurnal cycle, in the sense of the period of 24 hours of mean time perpetually. The Nabonassarian type of equable time was destined by nature to accompany this cyclical one, just as the Julian was to accompany the natural; but only as subordinate to it, only as dependent upon it, only as equated to it at a given time, and only as representing it faithfully while that state of equation to it lasted. The true standard of equable annual time from the first was this cyclical type; as the true standard of Julian was the mean natural year: and the case is still the same as at first. The relation indeed of the two types, the cyclical and the Nabonassarian, to each other at present is fixed, and has been so ever since A.D. 225: but it should never be for-

gotten that it was not the cyclical which was fixed even then, in reference to the Nabonassarian, but the Nabonassarian which was so in reference to the cyclical.

Now this being the case; it must be evident that, even on the assumption that the true Julian epoch of the Sothiacal period was July 20, it could never be sufficient, in order to discover this epoch, to go back to the time when the first of the Nabonassarian Thoth was falling on July 20. That point is easily determined, according to the simple law of the succession of purely Nabonassarian and of purely Julian time in conjunction. It is neither earlier nor later than B. C. 1322, answering to *æra cyclica* 2685. But this is 575 years beyond the historical epoch of the *æra* of Nabonassar, B. C. 747, *æra cyclica* 3260; and 594 years further back than B. C. 728 *æra cyclica* 3279, the fixed term which, as we have shewn, equable Nabonassarian time cannot pass, without requiring to be corrected and rectified by a perpetual reference to equable cyclical.

It signifies nothing then that, B. C. 1322, the first of the Nabonassarian Thoth, as our tables shew, was actually falling on July 20, according to the Julian rule, at midnight. The real question is on what Julian term was the first of the cyclical Thoth falling at the same time; that is, *æra cyc.* 2685? Our tables will answer, and answer truly, on July 15 at midnight, according to the Julian rule: not on July 20. This was the true Julian date of the true equable Thoth, *æra cyc.* 2685, 594 years before *æra cyc.* 3279 B. C. 728. There was also a Nabonassarian term which answered at this same time to this Julian date, as truly as this cyclical one. But it was not the first of the Nabonassarian Thoth; but the first of the Nabonassarian *Epagomenæ*.

In this manner, and by such reasoning as this, is the received Julian epoch of that Sothiacal period, which came to an end in A. D. 139, viz. B. C. 1322, convicted of being in error. And the extent of the error being the difference between July 20 and July 15, that is, five days; it is manifest that, assuming one day as equivalent to a recession or to an advance of four equable or four Julian years, we must go back *twenty years* at least, (i. e. from B. C. 1322 to B. C. 1342,) in search of the true first year of the period. Now in this



year, which answers to *æra cyclica* 2665, we find the first of the cyclical *Thoth*, according to the Julian rule, falling on July 20 at midnight. But this is the leap-year of the cycle, peculiar to the period; in which the Julian epoch of origination must be one day higher than in the common years. We must still go back then four years further at least, i. e. to B. C. 1346 *æra cyclica* 2661; when we find the first of the cyclical *Thoth*, according to the Julian rule as before, falling on July 21 at midnight. But we are also to take into account the fact that, at this point of time, so long anterior to B. C. 672, the epoch in the leap-years of the cycle, which after B. C. 672 was July 21, before that date must have been July 22. We must therefore go back another four years; i. e. from B. C. 1346 to B. C. 1350 *æra cyclica* 2657: and here we shall at last find what we are in search of, (the true Julian date of origination of the Sothiacal period which came to an end A. D. 139,) in the true Julian date of the first of the cyclical *Thoth* *æra cyclica* 2657; viz. July 22 at midnight according to the Julian rule, B. C. 1350.

Having arrived at this conclusion, which we shall find to be confirmed by a variety of proofs hereafter, we shall present the reader with the only true scheme of the period itself, from this epoch of origination, *Thoth* 1 *æra cyclica* 2657, July 22 B. C. 1350, down to its supposed termination, *Thoth* 1 Nabon. 887, Mesore 29 *æra cyclica* 4146, July 20 A. D. 139: a scheme which we shall exhibit in both the equable and the Julian notation of annual and of noctidiurnal time perpetually, only distributed, for the sake of compendiousness, into a certain number of periods; which down to B. C. 728 are the same with the Julian periods of our *Fasti*, afterwards are periods of 120 Julian years, in the course of each of which the recession of equable time, (in the sense of Nabonassarian,) on Julian amounts to 30 days, or one equable month, perpetually; and consequently a given Julian term, like July 21 or 20, rises 30 days in the equable style of noctidiurnal time, perpetually also.

## SECTION VIII.

*First Sothiacal period of the ancient Egyptians ; from B. C. 1350 to A. D. 135 ; shewing the equable date of July 21 the epoch of origination, in the common years of the cycle of leap year of the period, first at the beginning of each of the periods of the Fasti, from B. C. 1348 to B. C. 728, secondly at the beginning of every period of 120 years, from B. C. 728 to A. D. 135.*

Periods of the Fasti.	Period of the table.		Year of the period of the Fasti.	B. C.	Æra cye.	Æra of Nab.	Cyclical dates.	Julian answering to cyclical.	Nabonassarian dates.	Julian answering to Nab.
xxii			23	1350	2657		Thoth .... 1	July 22		
	i		25	1348	2659		Thoth .... 1	— 21		
xxiii	ii		1	1260	2747		Thoth .... 22	— 21		
xxiv	iii		1	1120	2887		Phaophi .. 26	— 21		
xxv	iv		1	980	3027		Athyr .... 30	— 21		
xxvi	v		1	868	3139		Choeac .... 27	— 21		
xxvii	vi		1	728	3279	20	Mecheir ... 1	— 21	Mecheir .. 1	July 21
xxviii			1	672	3335	76	Mecheir ... 13	— 20	Mecheir .. 14	— 20
xxviii	vii		65	608	3399	140	Mecheir ... 29	— 20	Mecheir .. 30	— 20
xxix	viii		45	488	3519	260	Phamenoth 28	— 20	Phamenoth 30	— 20
xxx	ix		53	368	3639	380	Pharmuthi 27	— 20	Pharmuthi 30	— 20
xxxi	x		33	248	3759	500	Pachon.... 26	— 20	Pachon.... 30	— 20
xxxii	xi		13	128	3879	620	Paüni .... 25	— 20	Paüni .... 30	— 20
xxxiii	xii		21	8	3999	740	Epiphi .... 24	— 20	Epiphi .... 30	— 20
				A. D.	Æra cye.	Æra Nab.				
xxxiv	xiii	Year.	1	113	4119	860	Mesore.... 23	— 20	Mesore.... 30	— 20
		23	23	135	4141	883	Mesore.... 29	— 21	Thoth .... 1	— 21
		27	27	139	4145	887	Mesore.... 29	— 20	Thoth .... 1	— 20

This scheme requires no additional explanation. It is proper however to observe that though, after the first year of the period B. C. 1350, we assign only one Julian epoch, July 21, perpetually, there are in reality two all along, July 22 and July 21 ; the former in the leap-years of the period the latter in the common. It is proper also to remind the reader, that the cycle of leap-year of this period anticipates on the Julian by six months. We have begun the scheme, digested as above, in the *third* year of the period, B. C. 1348, and in the *second* year of the Julian cycle of leap-year, (in which our own Julian periods also begin,) when the epoch of origination was necessarily July 21. It is proper too to direct attention to the fact that at the beginning of the viith of these periods, B. C. 608, this date of origination drops from July 21 to July 20. The proper date of this change

indeed was the 57th year of the vith period, B. C. 672 ; at which time, for the reason so often explained, as April 25 dropt to April 24 and Mesore 10 to Mesore 9, so July 21 dropt to July 20, and the corresponding equable date, in the Nabonassarian style, dropt from Mecheir 15 to Mecheir 14, and in the cyclical from Mecheir 14 to Mecheir 13.

Lastly, the stated dates of the period at first, July 22 and 21, having thus finally become July 21 and 20 ; it is very observable that the true year, in which the first of the equable Thoth (at this time the Nabonassarian) was returning to the Julian epoch of origination, July 21, under the same circumstances as at first, was A. D. 135, as our tables shew, not A. D. 139 ; and yet, July 20 being at this time as much the proper representative of the date of origination in the common years of the cycle as July 21 in the leap years ; it could not be said that even A. D. 139, Nab. 887, this first of Thoth was not still falling on the epoch of origination of the period.

And yet this was the last year of which such a coincidence was possible. It is therefore something remarkable that the actual termination of the first period of this kind, and the actual commencement of the second, assigned by contemporary testimony, should have been thus circumscribed. We cannot explain this by supposing the Egyptian priests to have made a mistake of four years in their reckoning of the period : we are much more inclined to believe that they chose to begin a new period four years later on purpose. The testimony of Apuleius may possibly throw some light on this point, if the proper time for considering it should ever arrive. The first year of this second period, so assumed, A. D. 139–140, is nearly coincident with the beginning of the reign of Antoninus Pius : and there is reason to conclude from the Milesian Fables of Apuleius that whether on this account, or for some other reason, some supposed great ἀποκατάστασις, or return of things to their original relations, in bringing which about the Egyptian goddess Isis acted the principal part, actually coincided with this beginning of a new Sothiacal period, A. D. 139–140.

SECTION IX.—*On the absolute epoch of the Sothiacal period ; that is, whether there was ever more than one period, known to the Egyptians.*

The Sothiacal period then, which testimony thus shews to have come to an end July 20 A. D. 139, having thus also been shewn to have begun July 22 B. C. 1350 ; the question, which next suggests itself is whether this was the first period of that description ever known in Egypt? or whether we must go back another 1460 years at least to find the first actual period of the kind?

In answer to which question, we do not hesitate to declare it to be our opinion that the period, which really began July 22 B. C. 1350, was actually the first ever known to the Egyptians ; and that to go back, as learned men have repeatedly done, one more period or even two, to find the absolute epoch of such a period itself, would be worse than useless ; because it would only take us so much further away from the truth.

No one can think of attaching the least importance to that pretended reckoning of periods of this description, either by themselves or as compounded with other periods, and along with them forming still larger cycles and complexes of time, by means of which the Egyptians imposed on the credulity of the ancients, and have very nearly, if not altogether, succeeded in imposing on that of the moderns also ; especially on that of those who have been willing to be so deceived, but unwilling to believe in Scripture. Dismissing these fabulous periods as unworthy of any serious notice, we shall endeavour to shew, at present, that the Sothiacal reckoning could not be traced historically, even by the Egyptians themselves, further back than one such period ; that the best informed among them knew of no more than one ; and, when they spoke advisedly on such subjects, even *they* never recognised more than one. Other proofs of the same thing may appear as we proceed ; but this will suffice as a means of establishing it for the present.



SECTION X. *Testimony of Theo Alexandrinus.*

M. Biot<sup>i</sup> has quoted an extract from one of the MSS. in the national library at Paris, containing various works of Theo Alexandrinus, besides his commentary on Ptolemy and his *Πρόχειροι κανόνες*; from which fact M. Biot (reasonably as we think) infers that this particular passage also, found in the same collection, whether expressly ascribed to him or not, in all probability is a fragment of his. It is certain that the date to which this passage is determined is æra Diocletiani 100, A. D. 383–384: and that, as we have seen<sup>k</sup>, is consistent with the age of Theo himself.

The passage prescribes a rule for finding the date of the heliacal rising of Sirius in the fixed or Alexandrine calendar of Egypt, but *through* the equable or moveable one. We shall begin with producing it as we find it proposed by M. Biot.

Περὶ τῆς τοῦ κυνὸς ἐπιτολῆς ὑπόδειγμα.

Ἐπὶ τοῦ ρ' ἔτους Διοκλητιανοῦ περὶ τῆς τοῦ κυνὸς ἐπιτολῆς ὑποδείγματος ἔνεκεν λαμβάνομεν τὰ ἀπὸ Μενέφρεως ἕως τῆς λήξεως Αὐγούστου· ὁμοῦ τὰ συναγόμενα ἔτη  $\overline{\alpha\chi\epsilon}$ . (1605.) οἷς ἐπιπροσθετοῦμεν τὰ ἀπὸ τῆς ἀρχῆς Διοκλητιανοῦ ἔτη ρ'· γίνονται ὁμοῦ ἔτη  $\overline{\alpha\chi\epsilon}$  (corr.  $\overline{\alpha\psi\epsilon}$ ) (1705). τούτων λαμβάνομεν τὸ τέταρτον μέρος, ὃ ἐστὶ  $\overline{\upsilon\kappa\varsigma}$ . (426.) τούτοις προσθέντες (ἡμέρας? <sup>l</sup>) ε', γίνονται  $\overline{\upsilon\lambda\alpha}$ . (431.) ἀπὸ τούτων ἀφελόντες τὰς τότε τετραετηρίδας οὐσας  $\overline{\rho\beta}$  (102) λοιπὸν  $\overline{\kappa\alpha'}$ . (21.) τὰ λείποντα ἡμέρας  $\overline{\tau\kappa\theta}$ . (329.) ταύτας ἀπόλυσον ἀπὸ Θῶθ, διδόντες ἐκάστῳ μηνὶ ἡμέρας λ'. (30.) ὥς εὕρίσκεσθαι τὴν ἐπιτολὴν ἐπὶ τὸ Διοκλητιανοῦ Ἐπιφὶ  $\overline{\kappa\theta'}$ . (29.) ὁμοίως ποιεῖ ἐπὶ ὁποδῆποτε χρόνου.

This passage is evidently corrupt in other parts; but it does not appear to be so in the numbers specified by it, except in one instance,  $\overline{\alpha\chi\epsilon}$  for  $\overline{\alpha\psi\epsilon}$ : and these are the most important parts of it. With regard to its explanation, we have read M. Biot's; and it does not appear to us that he has altogether represented it rightly: but as it would take up too much time to institute a critical examination of his account of it, we hope we shall be excused if we pass at once to

<sup>i</sup> Recherches, sur plusieurs points de l'Astronomie Egyptienne. Paris, 1823. 8vo. p. 303. v. notes. The MS. is described as No. 2390, and the passage is found at folio 154.

<sup>k</sup> Dissertation xii. ch. iv. sect. v. vol. ii. 461.

<sup>l</sup> This is added conjecturally by M. Biot. It does not appear to be absolutely necessary.

what we ourselves consider to be the proper interpretation of the author's meaning.

i. We must begin with observing that the true date of the Alexandrine correction was August 30, B. C. 26; a fact which can be established by the testimony of Theo himself, as we trust to shew hereafter, and therefore could not be unknown to him: and this rule itself, when it comes to be understood, will prove that it was not. It is to be observed also that, before the introduction of the æra Diocletiani into Egypt, (an æra properly attached to the fixed Egyptian calendar, i. e. the Alexandrine,) A. D. 284, there was another æra in use in that country, the æra Augusti, which bore date on Thoth 1, Nab. 719, August 31, B. C. 30<sup>m</sup>; and was more properly attached to the equable calendar. This æra may be said to have ceased when that of Diocletian was introduced: and this is what our author means by the *λῆξις Αὐγούστου*, the cessation or disuse of the æra Augusti properly so called.

ii. The calculation being proposed for the 100th year of the æra of Diocletian; this year began to bear date Thoth 1, August 30, A. D. 383: for the first year of the æra bore date Thoth 1, August 29, A. D. 284.

iii. The date of the Alexandrine correction and of the first cycle of leap-year in that calendar being Thoth 1, August 30, B. C. 26; the date of the 103d leap-year, in the same calendar, was Thoth 1, August 30, A. D. 383: for  $26 + 382 = 408 = 102 \times 4$ . This is what our author means by the 102 *τετραετηρίδας* (complete) of which he makes mention, from the date of the Alexandrine correction to the 100th year of Diocletian.

iv. One cycle of leap-year in a Julian calendar being assumed to be equivalent to a recession of *one* day in the equable calendar, and, *vice versa*, a recession of one day in that to four years in the other; 431 days recession are = 1724 Julian years: and these being supposed to have come to an end at the beginning of the hundredth year of the æra of Diocletian, A. D. 383, they must be supposed to have begun B. C. 1342: for  $1724 - 382 = 1342$ . It is manifest then that our author supposes 431 cycles of leap-years, and cycles

<sup>m</sup> See the Introduction to our Tables.

complete; the last of which terminated A. D. 383, Diocletian 100 *ineunte*; and therefore the first began B. C. 1342.

Now this is an important conclusion. It proves that he reckoned B. C. 1342 to have been the time when the 1st of Thoth was falling on the date of the heliacal rising of Sirius, at the beginning of these 431 cycles of leap-years; just as Epiphi 29 was at the end. It proves consequently that he reckoned B. C. 1342 the true epoch of the Sothiacal period, dated from that coincidence of the first of Thoth with the heliacal rising of Sirius; and not B. C. 1322.

And yet it may be made to appear that he was aware of this latter date also; though he did not consider it to be the truth. For he begins, as we perceive, with reckoning 1605 years from the termination of the æra Augusti, or in other words, the beginning of the æra of Diocletian, (consequently from A. D. 284,) to what he calls the epoch of Menephres, the epoch of the æra of Menephres. Subtract 283 from 1605, and the remainder is 1322. It is evident then, on this principle, that this epoch of Menephres was nothing more or less than B. C. 1322; i. e. the commonly received date of the beginning of the same Sothiacal period which was commonly also believed to have come to an end in A. D. 139. And yet it is clear that this author did not concur in the general opinion on that point; because he reckons back 20 years further, (i. e. to B. C. 1342,) to find the true epoch of the period\*. It is no objection that this king, whom he calls Menephres, (if it was a king whom he meant by that

\* It is manifest, from his own words, that the author of the rule reckoned 1705 years from this epoch of Menephres to the hundredth year of Diocletian: and that he took the fourth part of this sum, 426 years, as the number of cycles of the leap-year complete which entered into 1705 years: but that the number of such cycles complete which he wanted was 431, five more than 426; for which reason he immediately after directs us to add *five* to 426; and then says the sum resulting is 431. This must be demonstrative that by this number *five* he meant something the same in general as by the number 426, to which they were to be added, just before, and as by the number 431, of which they made part, immediately after: that is, cycles of leap-year in every one of these cases alike; each of them equivalent to four years. M. Biot seems to have taken these five for so many simple days.

name,) appears no where, under that appellation at least, either in the dynasties of Manetho, or in those which have been recovered from the monuments; though such a name, it is said, has been discovered on one of the tombs at Thebes, as that of the father of Rameses or Ramses the Great. It would be no difficulty, in our opinion, even if this Menephres never had a real existence, (as we ourselves believe to have been actually the case,) but quite the contrary. The difficulty would be, were he truly a real historical character. But the question in this instance is merely about the epoch of the Sothiacal period; whether that was B. C. 1322, or 20 years earlier at least, B. C. 1342; and what the best informed of the Egyptians themselves thought concerning it.

v. The first of Thoth, at the beginning of these 1724 years, or 431 cycles of leap-year, B. C. 1342, being supposed to have coincided with the stated date of the heliacal rising of Sirius, and thereby to have determined the beginning of a Sothiacal period; it might be assumed that it would recede ever after on this stated date at the rate of one day for every four years; and therefore 431 days in all, from B. C. 1342 to Diocletiani 100, A. D. 383.

But here it is necessary to take into account the fact that the first of Thoth itself was fixed, and rendered incapable of any further recession, by the Alexandrine correction, B. C. 26; at which time the recession on the date of origination, at the rate which has been supposed perpetually, was 329 days exactly;  $1342 - 26$  being  $= 1316$  or 329 cycles of leap-year complete. It is manifest then, under these circumstances, that to find the date of origination, that is the standing date of the heliacal rising of Sirius, at this point of time, we must reckon 329 days from the 1st of Thoth, B. C. 26; and that will bring us to Epiphi 29, B. C. 25: and the first of Thoth having been fixed by the Alexandrine correction at this time, Epiphi 29 was fixed also: so that the stated date of the heliacal rising of Sirius, in the Alexandrine calendar, never could be any thing but Epiphi 29; the Julian date answering to which was July 23. It is evident too that this is the conclusion to which the author of the rule himself comes at last: and therefore that he might have stopped here, if he had



thought proper; i. e. at the date of the Alexandrine correction; and his rule would still have done what he proposed to do by it, just the same.

In reality however he supposes the recession of the first of Thoth on the epoch of origination, B. C. 1342, to have gone on in the same way, after B. C. 26, as before it, until it accumulated to the exact sum of 431 days: which would be the case at the end of 1724 years complete, A. D. 383, in the hundredth year of Diocletian *ineunte*. But at this time, he directs us to cast off 102 days from this sum at once; which reduces it to 329—just what it was B. C. 26: and therefore brings out the date of the rising of Sirius at last, 329 days after Thoth 1, Epiphi 29 the same as before\*. These 102

\* The calculation requires at last in strictness the 30th Epiphi, not the 29th: for 329 days, reckoned from Thoth 1 exclusive, bring us to Epiphi 30, reckoned inclusively. If indeed the first of Thoth is included in these 329, the last will be Epiphi 29. But in this case the absolute interval between them must be only 328 days: and therefore the number of leap-years, answering to the number of days, would be one less than 329 also.

It is possible that the author of this Scholium, whosoever he was, had particular reasons for attaching the rising of Sirius to the Alexandrine Epiphi 29, July 23. The latitude of Alexandria is more than a degree greater than that of Memphis: the latter being  $30^{\circ} 2' 4''$  N., the former  $31^{\circ} 12' 53''$  N. In the work above referred to, (p. 307, 308,) M. Biot assumes that a mean difference of  $1^{\circ} 5'$ , according to Ptolemy, would make a day's difference in the date of the heliacal rising of Sirius for different latitudes. Consequently if it was July 20 at Memphis, it would be July 21 at Alexandria; if July 21 or 22 at the former, it would be July 22 or 23 at the latter.

The Scholiast on Aratus observes on verse 150 of the *Phænomena*,

Αἱ δὲ που ἀσταχῶν κενεαὶ φαίνονται ἄρουραι  
ἡελίου τὰ πρῶτα συνερχομένοιο Λέοντι·

Ἄπτεται δὲ καὶ θεολογίας ἐνταῦθα ὁ Ἄρατος τὴν τῆς κόρης ἀρπαγὴν δηλῶν, καὶ τὸν ἐν Ἰδαίου γάμον, ἐν τῷ λέγειν κενεαὶ ἄρουραι· αὐτὴν γὰρ εἶναι τοὺς καρπὸς καὶ μητέρα τὴν γῆν. καὶ γὰρ παρ' Αἰγυπτίους κατὰ τὸν Ἐπιφί μῆνα, ὅτε ἐν Λέοντι γίνεται ὁ ἥλιος, ἡ τῆς κόρης ἀρπαγὴ τελειοῦται.

A man must be possessed of peculiar sagacity for such discoveries, who should be able to divine from this passage of Aratus a mystical reference like this. It refers to nothing but a simple natural matter of fact; true every where in his time; certainly in Macedonia, and much more in Egypt; viz. that by the time of the transit of Sol into Leo, (July 26 or 27,) the harvest was every where over. It is necessary to make this remark, lest it should be concluded from this Scholium that the ἀρπαγὴ κόρης was

days are the amount of the recession in 408 years, or 102 cycles of leap-years: and that is the number of years, from August 30 B. C. 26 the true date of the Alexandrine correction, to August 30 A. D. 383 the 100th year of Diocletian *ineunte* \*.

celebrated in Egypt in Aratus' time on any stated day in the month Epiphi; coincident with the season of midsummer at least. Yet we must conclude from it, that some time or other it was actually celebrated in Egypt; and in this month too, and at this time of the year.

The month Epiphi in the Alexandrine calendar was peculiarly circumstanced with respect to the solar ingresses. Its first Julian term was June 25 and its last July 24. Now if June 23 is reckoned the date of the ingress of the sun into Cancer, July 23 or 24 must be reckoned that of the ingress into Leo. The former of these was the original date of midsummer day in the Julian correction, B. C. 45; and it would still be reckoned so at the date of the Alexandrine correction, B. C. 26-25. If the ἀρπαγή κόρης, according to the Scholiast on Aratus, was actually attached to some day in Epiphi, and to some day in Leonton too: that day must have been one of these two; July 23 or 24, Epiphi 29 or 30. So that, if it did not fall on the stated date of the rising of Sirius at Alexandria, it fell on the day after it.

This feast of the ἀρπαγή κόρης was most characteristic of Sicily, and of the rites of the Greeks of Sicily. It may be collected from Diodorus Siculus, v. 4, that the feast of Proserpine in that island, which he too calls the καταγωγή τῆς κόρης, as the Scholiast calls it the ἀρπαγή, was celebrated at that time of the year when the corn was ripe. Cf. also Plutarch's Life of Dion, lvi, from which we learn that the κούρεια (another name for the same ceremony) lasted more than one day. We have seen reason to conclude that the date of this feast in the Syracusan calendar was the first decad of the month which coincided with July. B. C. 26-25, this month began July 16: and the last day of the first decad was July 25: and yet July 23 and 24, Epiphi 29 and 30, made part of this decad too. We cannot however enter any further on the explanation of this point at present.

\* We believe that we have now explained every part of the rule in question, which requires explanation to make it intelligible: and even every part of the text of the rule, except what relates to the numbers κα', found in connection with the allusion to the 102 leap-years: τὰς τότε τετραετηρίδας οὖσας ριβ'. λοιπὸν κα'. τὰ λείποντα ἡμέρας τκθ. In our opinion, the words λοιπὸν κα' have got out of their proper place, which was more probably before τούτων λαμβάνομεν τὸ τέταρτον μέρος, ὃ ἐστὶ ὄκς. The meaning at least is sufficiently clear: that 426 cycles of leap-years = only 1704 years; one year less than 1705 years, and 21 years less than 1725. We should therefore perhaps read the first part of the passage, γίνονται ὁμοῦ ἔτη ἀψ'ε λοιπὸν κα': the reference being to 1725, the number actually required from Diocletian 100, A. D. 383-384 to B. C. 1343-1342.

SECTION XI.—*Testimony of Clemens Alexandrinus.*

We meet with an allusion to the Sothiacal period in the *Stromata* of Clemens Alexandrinus also; on which too we may found the same inference, that he knew of no more than one period of that description, the date of which was capable of being historically assigned. His object, in this part of his work, is to demonstrate, from actual comparison of sacred with profane chronology, the much greater antiquity of the former. Ἀνωθεν οὖν ἀπὸ Μωϋσέως συναγάγωμεν τὴν καθ' Ἑλληνικῆς χρονογραφίαν. ἀπὸ τῆς Μωϋσέως γενέσεως ἐπὶ τὴν ἐξ Αἰγύπτου Ἰουδαίων ἔξοδον ἔτη ὀγδοήκοντα· καὶ τὰ μέχρι τῆς τελευτῆς αὐτοῦ ἄλλα τεσσαράκοντα. γίνεται ἡ ἔξοδος κατὰ Ἰναχον, πρὸ τῆς Σωθιακῆς περιόδου ἐξελθόντος ἀπ' Αἰγύπτου Μωϋσέως ἔτεσι πρότερον τριακοσίοις τεσσαράκοντα ε' <sup>u</sup>.

This manner of alluding to the period *absolutely*, πρὸ τῆς Σωθιακῆς περιόδου, is a clear intimation, in our opinion, that Clement of Alexandria knew of one period only so called; which period began later than the Exodus at least. And if *he* did not know of more than one such, it would be hard to say which of his contemporaries did: for no one, either in his time or before his time, appears to have been more learned on all questions of that kind than this father; as his writings shew.

With regard to the details of the computation which follow, we are not disposed to rest much on *them*; being persuaded that they cannot be more than generally in agreement with the truth. We may observe however that, in this part of his own work, Clemens had his eye on Tatian<sup>o</sup>, who also dates Moses κατὰ Ἰναχον, and 400 years before τὰ Τρωϊκά; confirming his positions by proofs similar to these of Clemens<sup>p</sup>. Clemens too reckons it 400 years and upwards from Inachus to the Trojan war<sup>q</sup>: and from this war, to the first Olympiad, not only he and Tatian, but almost all the chronologers of old, suppose an interval of 407 years<sup>r</sup>.

The first Olympiad being invariably dated B. C. 776, this

<sup>n</sup> i. xxi. § 136. p. 91. l. 26.

<sup>o</sup> Contra Græcos, lx. 132. l. 1: lvii. 125. 9. (Oxonie, 1700.) Cf. Eusebius, Præp. Evang. x. 11. 514—524. Clem. Alex. Strom. i. xxi. § 101, 102.

<sup>p</sup> lix: lx: lxi—lxiii: lxiv. cf. xlviii.

<sup>q</sup> i. xxi. § 102. p. 72. l. 25.

<sup>r</sup> Ibid. § 130. p. 87. l. 28: 137, 138. p. 92: 139. p. 93.

gives the time of Inachus, (and, if of Inachus, that of Moses also,) 807 years before; B. C. 1583. The date of the Sothiacal period 345 years later than this would be B. C. 1238; much below the truth: on which account, supposing the above numbers exact, we might not unreasonably suspect that instead of 345 years in the above passage of Clemens we ought to read 245 years. For this would make the date of the period B. C. 1338; only 12 years less than the true date, B. C. 1350, and only 16 more than the received one, B. C. 1322.

But the particulars of the interval from Moses and the Exodus to the first Olympiad, actually given by him and stated as follows<sup>s</sup>, bring out a different result.

*Chronological summary, according to Clemens Alexandrinus, from Moses and Inachus to the first Olympiad.*

i	From the Στρατηγία of Moses, κατὰ Ἰναχον, to the flood of Deucalion . . . κατὰ Κρότωπον (cf. § 102) 40 generations (in error for 4 § 102.) <sup>t</sup>	-	-	-	133
ii	Thence to the Idæi Dactyli	-	-	-	73
iii	.. to the rape of Ganymede	-	-	-	65
iv	.. to Perseus, Glaucus, and the Isthmian games	-	-	-	15
v	.. to the foundation of Troy	-	-	-	34
vi	.. to the Argonautic expedition	-	-	-	64
vii	.. to Theseus and the Minotaur	-	-	-	32
viii	.. to the Seven against Thebes	-	-	-	10
ix	.. to the Olympia of Hercules ἐπὶ Πελοπι	-	-	-	3
x	.. to the expedition of the Amazons, and rape of Helen by Theseus	-	-	-	9
xi	.. to the apotheosis of Hercules	-	-	-	11
xii	.. to the rape of Helen by Paris	-	-	-	4
					453
xiii	.. to the capture of Troy	-	-	-	*
xiv	.. to the foundation of Lavinium	-	-	-	10
xv	.. to the reign of Ascanius	-	-	-	8
xvi	.. to the return of the Heraclidæ	-	-	-	61
xvii	.. to the Olympia of Iphitus	-	-	-	338
					417

<sup>s</sup> Ibid. § 136. p. 91. l. 26. sqq. cf. § 102. p. 72—108. p. 76: § 117. p. 80: § 130. p. 87.

<sup>t</sup> Cf. Tatian, lix. 131. 4—15: lxi. 134. 12: 20 generations comprised the

whole of the interval from Inachus to the capture of Troy. See Eusebius, (Evangelica Præp. x. 11. 519. 15—520. 16.) from Tatian: and (x. 12. 526, 7. from Clemens Alex. himself.



The numbers which expressed the interval from the Raptus Helenæ by Paris to the capture of Troy (xiii) are lost out of the text. Homer would authorize us to reckon this interval at 20 years; and assuming it at 20 we get the entire interval from No. i. to xvii, both inclusive,  $870 + 20 = 890$  years; and therefore the Exodus, on this principle, B. C. 1666; the Sothiacal period, 345 years after, B. C. 1321. But though this result is remarkably near the commonly received date of this period, B. C. 1322, we cannot depend on the simple statement of the numbers in each of these instances. In the first instance of all we have been obliged to assume an error in the text of forty generations instead of four; which last, according to Clement's own estimate of *three* generations in *one hundred* years, would suppose a period of 133 years. The only use which we propose to make of this testimony in general is to infer from it that Clemens too recognises only one Sothiacal period; the date of which also was 300 years and upwards later than the historical date of the Exodus. Consequently that he knew of only one; and that too comparatively of recent date.

---

### CHAPTER III.

*On the rise of the Fable of Osiris and Isis in Egypt; and on the connection of the invention of that Fable with the Sothiacal period.*

---

#### SECTION I.—*Importance of the Sothiacal period in this point of view.*

THE conclusions at which we have now arrived; That there was never more than one Sothiacal period among the Egyptians, and this period that which is known to have come to an end in A. D. 139; That this Sothiacal period itself was a Julian period and had a proper cycle of leap-year; That this was the same with the Alexandrine of later date; That it had a double Julian date, adapted to such a cycle, one for the leap-years, the other for the common years, of the cycle, the former originally July 22, eventually July 21, the latter at

first July 21, and at last July 20; That the true epoch of the period was consequently the time when this Julian term of July 22 was coinciding with the 1st of the cyclical Thoth, and both with the stated date of the heliacal rising of Sirius for the latitude of the ancient Heliopolis in Egypt; That this was the case only in B. C. 1350; That the true date of the period consequently was 28 years earlier than the commonly received date B. C. 1322: these conclusions may be considered to have been sufficiently well established; and consequently, even had we no more still to say on these points, yet, so far as the Sothiacal period itself was concerned, little would now be necessary for its complete explanation.

But the most important part of this subject still remains to be considered; and that is the question whether the Sothiacal period itself is not inseparably connected with something else? whether the rise of the fable of Osiris and Isis in Egypt, the first introduction of the worship of these two, the principal divinities of the Egyptians, and the first institution of the Isia, the chief festival in their calendar, and the first Sothiacal period of the Egyptians, are not all connected together? To these points must our attention be next directed. If this connection can be established, and neither the deification or worship of Osiris and Isis, nor the Isia, the most characteristic observance of the Egyptian calendar, can be shewn to be older in Egypt than the Sothiacal period; if it can be proved that all came into existence at once; no one requires to be told how important such a conclusion is likely to be in other respects; how fatal to the extravagant pretensions which the Egyptians themselves have advanced in favour of the antiquity of their own Osiris, and of their own Isis; how subversive of the monumental chronology; how totally incompatible with the schemes and systems of time which the misdirected learning of the present day has been sedulously labouring to build up on this fabulous basis of monumental dynasties, the oldest of which by its own admission is thousands of years younger than Osiris and Isis at least, and yet (if its own word is to be taken for its own truth) thousands of years older than B. C. 1350.

And this being the ulterior consequence involved in the proof of this further conclusion; it is impossible to overrate

its importance with regard to the questions at issue between the monumental chronology of the Egyptians, and the chronology of Scripture; questions which, since the discovery of the key to the system of hieroglyphical writing, have almost exclusively engaged the attention of curious and inquisitive minds both in this country and abroad. With respect to these, while the good faith of the monumental testimony was implicitly taken for granted, it was easy to foresee that the judgment of sceptical and unscrupulous men would always decide (as in fact it has hitherto done) in favour of Egyptian antiquity, to the prejudice of Scripture. And yet even those, who could not be persuaded to give up their confidence in the truth of Scripture to any appearance of proof to the contrary, must always have been painfully at a loss to reconcile their unshaken conviction of that truth with the implicit admission of the monumental testimony as credible and trustworthy also. To such minds a plain and intelligible, as well as a direct and decisive, argument of the utter falsehood of the whole of this monumental system must bring unspeakable relief. And the argument which we hope to produce, with the Divine blessing on our endeavours, we trust will be found to be of this description; plain and intelligible to the simplest understanding, but to the point and decisive also: an argument which proposes no middle course between proving every thing or proving nothing; and if it exposes the falsehood of this monumental system at all, will prove it to be *totally* false; to be *utterly* without foundation; to be a mere work of fraud and fiction; the invention of artful, designing, and unprincipled men, who never intended any thing by it except to attain some end which could be attained only by perverting and misrepresenting the truth.

If however this is the further purpose which we hope to serve by means of the inquiry on which we are about to enter, it is necessary that we should proceed deliberately. The first thing to be done is to produce the testimonies of antiquity to these two objects of the national worship among the Egyptians, Osiris and Isis, in general; and then to the *Isia*, in particular, the principal, if not the only, observance of the Egyptian calendar, of which any thing is

known at present, and always connected with the worship of these two divinities.

SECTION II.—*On the Osiris and Isis of the Egyptians. Testimonies of antiquity.*

i. Τοὺς δ' οὖν κατ' Αἴγυπτον ἀνθρώπους ... ἀναβλέψαντας εἰς τὸν κόσμον ... ὑπολαβεῖν εἶναι δύο θεοὺς αἰδίοις τε καὶ πρώτους, τὸν τε ἥλιον καὶ τὴν σελήνην, ὧν τὸν μὲν Ὅσιριν τὴν δὲ Ἴσιν ὀνομάσαι, ἀπὸ τινος ἐτύμου τεθείσης ἑκατέροις τῆς προσηγορίας ταύτης. μεθερμηνευομένων γὰρ τούτων, .. εἶναι τὸν μὲν Ὅσιριν πολυόφθαλμον, κ', τ. λ. ... τῶν δὲ παρ' Ἑλληνσι παλαιῶν μυθολόγων τινὲς τὸν Ὅσιριν Διόνυσον ἐπονομάζουσι<sup>1</sup>, καὶ Σείριον παρωνύμως ... τὴν δὲ Ἴσιν μεθερμηνευομένην εἶναι παλαιὰν, τεθειμένης τῆς προσηγορίας ἀπὸ τῆς αἰδίου καὶ παλαιᾶς γενέσεως. κέρατα δ' αὐτῇ περιτιθέασιν ἀπὸ τε τῆς ὄψεως ἣν ἔχουσα φαίνεται καθ' ὃν ἂν χρόνον ὑπάρχει μηνοειδῆς, καὶ ἀπὸ τῆς καθιερωμένης αὐτῇ βοδὸς παρ' Αἰγυπτίοις. τούτους δὲ τοὺς θεοὺς ὑφίστανται τὸν σύμπαντα κόσμον διοικεῖν, τρέφοντάς τε καὶ αὔξοντας πάντα τριμερέσιν ὥραις<sup>2</sup> ἀοράτῳ κινήσει τὴν περίοδον ἀπαρτιζούσαις, τῇ τε ἔαρινῃ καὶ θερινῇ καὶ χειμερινῇ<sup>3</sup>.

ii. Τὴν δὲ τῶν Αἰγυπτίων φιλοσοφίαν εἶναι τοιαύτην περὶ τε θεῶν καὶ ὑπὲρ δικαιοσύνης, φάσκειν τε ἀρχὴν μὲν εἶναι τὴν ὕλην, εἶτα τὰ τέσσαρα στοιχεῖα ἐξ αὐτῆς διακριθῆναι, καὶ ζῶά τινα ἀποτελεσθῆναι. θεοὺς δ' εἶναι ἥλιον καὶ σελήνην· τὸν μὲν Ὅσιριν τὴν δὲ Ἴσιν καλουμένην. αἰνίττεσθαι τε αὐτοὺς διὰ τε κανθάρου καὶ δράκοντος καὶ ἱέρακος καὶ ἄλλων· ὥς φησι Μανεθὼς ἐν τῇ τῶν Φυσικῶν Ἐπιτομῇ, καὶ Ἑκαταῖος ἐν τῇ πρώτῃ περὶ τῆς Αἰγυπτίων φιλοσοφίας<sup>4</sup>.

iii. Τὸν γὰρ βασιλέα καὶ κύριον Ὅσιριν ὀφθαλμῷ καὶ σκήπτρῳ γράφουσιν. εἶναι δὲ καὶ τοῦνομα διερμηνεύουσι πολυόφθαλμον, ὡς τοῦ μὲν ος τὸ πολὺ τοῦ δὲ ἰρι τὸν ὀφθαλμὸν Αἰγυπτίᾳ γλώττῃ φράζοντος<sup>5</sup>—Τὴν δὲ Ἴσιν οὐχ ἑτέραν τῆς σελήνης ἀποφαίνοντες, καὶ τῶν ἀγαλμάτων αὐτῆς τὰ μὲν κερασφόρα τοῦ μηνοειδοῦς γεγονέναι μιμήματα, τοῖς δὲ μελανοστόλοις ἐμφαίνεσθαι τὰς κρύψεις καὶ τοὺς περισκισμοὺς<sup>6</sup>, κ', τ. λ.

<sup>1</sup> Cf. i. 13. (Diodorus Sic.)

<sup>2</sup> Cf. i. 12. 16. 26.

<sup>3</sup> Diodorus Sic. i. 11. Cf. Eusebius, *Præp. Evang.* iii. 3. 189, seq.

<sup>4</sup> Diogenes Laertius, *Proem.* vii. §. 10. Cf. Theodoret, *Græc. Aff. Curatio*, iii. 124. § 44: Καὶ Αἰγύπτιοι δὲ

τὴν Ἴσιν καὶ τὸν Ὅσιριν ἥλιον εἶναι καὶ σελήνην φασί.

<sup>5</sup> Plutarch, *De Iside et Osiride*, x. Cf. li, where he adds the symbol of the hawk also; another mark of the sun.

<sup>6</sup> Ibid. lii.



iv. Καὶ Ἰσιν Αἰγύπτιοι ἀντὶ τοῦ τὴν σελήνην, τὴν τοῦ παντὸς ἀέρος ἔφορον<sup>b</sup>—Ἡ δὲ Ἰσις τῇ Αἰγυπτίων φωνῇ παλαιὰ σημαίνεται, τουτέστιν ἡ σελήνη<sup>c</sup>—Αὐτὸς μὲν Ὅσιρις καὶ Διόνυσος, ἐκείνη δὲ Σελήνη τε καὶ Ἰσις, λέγοντες εἶναι<sup>d</sup>.

v. Idem sub diversis nominibus religionis effectus est apud Ægyptios, cum Isis Osirin luget. nec in occulto est neque aliud esse Osirin quam solem, nec Isin aliud esse quam terram ut diximus, naturamve rerum<sup>e</sup>—Hinc est quod continuatis uberibus corpus deæ omne densetur, quia terræ vel rerum naturæ altu nutritur universitas<sup>f</sup>.

vi. Cum medio noctis spatio sub imagine somni  
Inachis ante torum pompa comitante suorum  
Aut stetit aut visa est. inerant lunaria fronti  
Cornua<sup>g</sup>.

\* \* \* \*

Visa dea est movisse suas (et moverat) aras :  
Et templi tremuere fores, imitataque Lunam  
Cornua fulserunt, crepuitque sonabile sistrum<sup>h</sup>.

vii. Of the sun and moon : Ἐνθεν τοι καὶ κοσμοκράτορας διὰ τοῦτο καὶ σημάτωντορας ἔργων καὶ φερεσβίους καὶ καρπίμους καὶ ἀστεράρχας καὶ δεσπότας κόσμον καὶ πιστοὺς φύλακας καὶ ρύσωτήρας πυρόεντας καὶ ὠροτρόφους καὶ χρόνου πατέρας ἀθανάτους προσαγορεύει ὁ Ὅρφευς<sup>i</sup> ἐν τοῖς θυμίοις ἀρώμασι. σύγγραμμα δὲ τοῦτο Ὅρφικόν<sup>k</sup>.

viii. Ὅτι οἱ Αἰγύπτιοι ἐσέβοντο θεῶν μάλιστα φησιν Ὅσιριν τε καὶ Ἰσιν, τὸν μὲν ἅπαντα δημιουργεῖν νομίζοντες εἶδеси τε καὶ ἀριθμοῖς τὴν ὕλην διακοσμοῦντα, τὴν δὲ κατάρδουσαν τε καὶ πιαίνουσιν τὴν τούτου δημιουργίαν ἀενάου ζωῆς ὀχετοῖς ἀμετρήτοις<sup>l</sup>.

ix. Ἰσις<sup>m</sup> δαίμωνός ἐστιν ὄνομα τιμωμένης παρὰ Αἰγυπτίοις. ἴσον γίνεται Ἰσις ἡ αὐτὴ γάρ ἐστι τῇ γῇ .... ἄλλοι δὲ λέγουσιν (ὅτι) αὕτη ἐστὶν ἡ Ἰώ, κ', τ. λ.

x. Isis autem est genius Ægypti, qui per sistri motum quod gerit in dextra Nili accessus recessusque significat : per

<sup>b</sup> Lydus, De Mensibus, iii. 26. p. 44.

1. i.

<sup>c</sup> Ibid. iv. 32. p. 70. l. 4.

<sup>d</sup> Dio, l. 5; of Antony and Cleopatra, B. C. 31.

<sup>e</sup> Macrobius, Saturnalia, i. xxi. 313.

Cf. et quæ sequuntur.

<sup>f</sup> Ibid. i. xx. ad fin. p. 311.

<sup>g</sup> Ovid, Metamorph. ix. 685.

<sup>h</sup> Ibid. 781.

<sup>i</sup> Cf. Orphica, Hymni, viii. Ἥλιου θυμίαμα : ix. Σελήνης θυμίαμα. Also ad v. 381. p. 473 of the ἀλληγορίαι εἰς Ἡσίοδον.

<sup>k</sup> Εἰς Θεογονίαν Ἡσίοδου ἀλληγορίαι. ad v. 381. p. 471.

<sup>l</sup> Photius, Biblioth. Cod. 242. Damascii Vita Isidori, p. 335. l. 28. Cf. Cod. 181. p. 126.

<sup>m</sup> Etymologicum M. 432.

situlam quam sinistra manu retinet ostendit affluentiam omnium lacunarum, id est fossarum, in quas Nilus stagnans recipiebatur. Isis autem lingua Ægyptiorum est terra, quam Isin volunt esse<sup>n</sup>.

xi. Οὕτω παρ' Αἰγυπτίοις Νεῖλον εἶναι τὸν Ὅσιριν Ἰσιδι συνόντα τῇ γῇ<sup>ο</sup>, κ', τ. λ — Οἱ δὲ σοφώτεροι τῶν ἱερέων οὐ μόνον τὸν Νεῖλον Ὅσιριν καλοῦσιν, οὐδὲ Τυφῶνα τὴν θάλασσαν, ἀλλὰ Ὅσιριν μὲν ἀπλῶς ἄπασαν τὴν ὑγροποιὸν ἀρχὴν καὶ δύναμιν, αἰτίαν γενέσεως καὶ σπέρματος οὐσίαν νομίζοντες· Τυφῶνα δὲ πᾶν τὸ ἀνχμηρόν<sup>p</sup> — Οὐ μόνον δὲ τὸν Νεῖλον ἀλλὰ πᾶν ὑγρὸν ἀπλῶς Ὀσίριδος ἀπορροὴν καλοῦσι· καὶ τῶν ἱερῶν ἀεὶ προπομπεύει τὸ ὑδρεῖον ἐπὶ τιμῇ τοῦ θεοῦ. καὶ θρίψ βασιλεία καὶ τὸ νότιον κλίμα τοῦ κόσμου γράφουσι· καὶ μεθερμηνεύεται τὸ θρίον ποτισμός καὶ κίνησις πάντων, καὶ δοκεῖ γεννητικῶ μορίῳ τὴν φύσιν εἰκέναι<sup>q</sup> — Ὡς δὲ Νεῖλον Ὀσίριδος ἀπορροὴν οὕτως Ἰσιδος σῶμα γῆν ἔχουσι καὶ νομίζουσιν, οὐ πᾶσαν ἀλλ' ἥς ὁ Νεῖλος ἐπιβαίνει σπερμαίνων καὶ μιγνύμενος<sup>r</sup> — Νέφθυν δὲ καλοῦσι τῆς γῆς τὰ ἔσχατα καὶ παρόρια, καὶ ψαύοντα τῆς θαλάττης· διὸ καὶ τελευταίην ἐπονομάζουσι τὴν Νέφθυν, καὶ Τυφῶνι δὲ συνοικεῖν λέγουσι<sup>r</sup> — De Nilo<sup>s</sup>: Ὁν Ὀσίριδος ἀπορροὴν ὀνομάζουσι, (the Nile, as supposed to be lost, or absorbed in the sea :) καὶ θρηνοῦντες τὸν ἐν τοῖς ἀριστέροις μέρεσι γεννώμενον, ἐν τοῖς δεξιούις φθειρόμενον, αἰνίττονται τὴν τοῦ Νεῖλου τελευταίην καὶ φθορὰν ἐν τῇ θαλάττῃ γινομένην.

xii. Τὴν δ' ὦν μεγίστην τε δαίμονα ἡγνεται εἶναι καὶ μεγίστην οἱ ὀρτὴν ἀνάγουσι ταύτην ἔρχομαι ἐρέων. ἐπὴν προνηστεύσωσι τῇ Ἰσι<sup>t</sup>, κ', τ. λ — Ἐν ταύτῃ γὰρ δὴ τῇ πόλει (Busiris) ἐστὶ μέγιστον Ἰσιος ἱρόν· ἱδρυται δὲ ἡ πόλις αὕτη τῆς Αἰγύπτου ἐν μέσῳ τῷ Δέλτα. Ἰσις δὲ ἐστὶ κατὰ τὴν Ἑλλήνων γλῶσσαν Δημήτηρ<sup>u</sup> — Θεοὺς γὰρ δὴ οὐ τοὺς αὐτοὺς ἄπαιτες ὁμοίως Αἰγύπτιοι σέβονται πλὴν Ἰσιός τε καὶ Ὀσίριος, τὸν δὲ Διόνυσον εἶναι λέγουσι<sup>w</sup> — Ὅσιρις δὲ ἐστὶ Διόνυσος κατ' Ἑλλάδα γλῶσσαν<sup>x</sup>.

xiii. Καὶ ὁμῶς ἕκαστοι αὐτοὶ μάλιστα εὖ νομίζειν δοκοῦσιν· Αἰθιοπῶν μὲν οἱ Μερόην οἰκοῦντες Δία καὶ Διόνυσον μόνους σέβοντες· Ἀράβιοι δὲ τὴν Οὐρανίαν καὶ Διόνυσον, τούτους μόνους

<sup>n</sup> Servius, ad Æneid. viii. 696. Cf. Isidore, Orig. viii. 11. 71. G. Varro, De Lingua Lat. iv. 17.

<sup>o</sup> Plutarch, De Iside et Osiride, xxxii.

<sup>p</sup> Ibid. xxxiii.

<sup>q</sup> Ibid. xxxvi.

<sup>r</sup> Ibid. xxxviii.

<sup>s</sup> Symposiaca, viii. Problema viii. § 2. Cf. De Iside et Osiride, xxxii; also p. 2-4 supra.

<sup>t</sup> Herodotus, ii. 40.

<sup>u</sup> Ibid. 59.

<sup>w</sup> Ibid. 42.

<sup>x</sup> Ibid. 144: cf. 156. 145. iii. 97.

Αἰγύπτιοι δὲ πάντες μὲν Ὀσιρίν τε καὶ Ἴσιν· Σαῖται δὲ Ἀθηνᾶν·  
Ναυκρατῖται δὲ οὐ πάλαι ἀρξάμενοι ὠνόμασαν (lege ἐνόμισαν)  
Σάραπιν<sup>γ</sup>.

xiv. Τῶν δὲ παρ' Ἑλλησι παλαιῶν μυθολόγων τινὲς τὸν Ὀσίριν  
Διόνυσον ἐπονομάζουσι... ὧν Εὐμόλπος μὲν ἐν τοῖς Βακχικοῖς  
ἐπεσὶ φησιν·

Ἀστροφαῇ Διόνυσον ἐν ἀκτίνεσσι πυρῶπόν·

Ὀρφεὺς δέ·

Τοῦνεκά μιν καλέουσι Φάνητά τε καὶ Διόνυσον<sup>z</sup>.

—Καὶ τὸν μὲν Ὀσίριν μεθερμηνευόμενον εἶναι Διόνυσον, τὴν δὲ  
Ἴσιν ἔγγιστά πως Δήμητραν<sup>a</sup>—Θεῖναι δέ φασι καὶ νόμους τὴν  
Ἴσιν... διὸ καὶ τοὺς παλαιοὺς Ἑλληνας τὴν Δήμητραν Θεσμοφόρον  
ὀνομάζειν ὡς τῶν νόμων πρώτον ὑπ' αὐτῆς τεθειμένων<sup>b</sup>—Αἰγύπτιοι  
μὲν γὰρ λέγουσι τὴν τε Δήμητραν καὶ τὴν Ἴσιν τὴν αὐτὴν εἶναι,  
καὶ εἰς Αἴγυπτον ἐνεγκεῖν πρώτην τὸ σπέρμα<sup>c</sup>.

xv. Ἀλλὰ ταῦτα μὲν ὅμοια τοῖς ὑπὸ τῶν Στωϊκῶν θεολογουμέ-  
νοις ἐστί. καὶ γὰρ ἐκεῖνοι τὸ μὲν γόνιμον πνεῦμα καὶ τρόφιμον  
Διόνυσον εἶναι λέγουσι· τὸ πληκτικὸν δὲ καὶ διαιρετικὸν Ἡρακλέα·  
τὸ δὲ δεκτικὸν Ἀμμωνα· Δήμητραν δὲ καὶ Κόρην τὸ διὰ τῆς γῆς  
καὶ τῶν καρπῶν διῆκον· Ποσειδῶνα δὲ τὸ διὰ τῆς θαλάττης<sup>d</sup>.

xvi. Liberum eundem apud Ægyptios Osirin Harpocracion  
industria hederatum argumentatur... si et Leonis Ægyptii  
scripta evolvet: prima Isis repertas spicas capite circumtulit,  
rem magis ventris<sup>e</sup>. Plutarch tells us that in Egypt the  
ivy was sacred to Osiris; and that its Egyptian name was  
χενόσιρις, i. e. φυτὸν Ὀσίριδος<sup>f</sup>.

xvii. Βούσιρις... οἶον Ὀσιρις, ὁ Διόνυσος παρὰ αἶγα (leg.  
Αἰγυπτίους). ἔστι καὶ ὄνομα πόλεως οὕτω λεγομένης, καὶ ὁ Νεῖλος<sup>g</sup>.  
—Πόλις Αἰγύπτου· ἐν ταύτῃ Ἰσιος μέγιστον ἱρόν. Ἰδρυται δ' ἐν  
μέσῳ τῆς Αἰγύπτου, ἐν τῷ Δέλτα. Ἴσις δ' ἐστὶ κατὰ τὴν τῶν Ἑλ-  
λῆνων γλῶσσαν ἡ Δημήτηρ<sup>h</sup>.

xviii. Καθόλου δὲ πολλή τις ἐστὶ διαφωνία περὶ τούτων τῶν  
θεῶν· τὴν αὐτὴν γὰρ οἱ μὲν Ἴσιν οἱ δὲ Δήμητραν οἱ δὲ Θεσμοφό-

<sup>γ</sup> Origen, *Contra Celsum*, v. 34.  
Opp. i. 603. D: cf. 37. 606. C D. 38.  
606 E: 607. A B.

<sup>z</sup> Diodorus Sic. i. 11. Cf. iv. 1, and  
Macrobius, *Saturnalia*, i. 18. p. 301.

<sup>a</sup> Ibid. 13. Cf. 25.

<sup>b</sup> Ibid. 14.

<sup>c</sup> Ibid. v. 69. This seems to have  
been Eudoxus' opinion also. See Plu-  
tarch, *De Iside et Osiride*, lxiv. Cf.  
also xxxiv, where Dionysos and Osi-

ris are called the *same*; and again,  
xxvii: Καὶ Ἴσιν τὴν Περσέφασσαν, ὡς  
Ἀρχέμορος εἶρηκεν ὁ Εὐβοεύς.

<sup>d</sup> Plutarch, *De Iside et Osiride*, xl.

<sup>e</sup> Tertullian, *De Corona Militis*, 7:  
Opp. iv. 348.

<sup>f</sup> *De Iside et Osiride*, xxxvii.

<sup>g</sup> *Etymologicum M.* 190.

<sup>h</sup> Stephanus Byz. 240. Βούσιρις. Cf.  
Herod. ii. 59.

ρον οἱ δὲ Σελήνην οἱ δὲ Ἥραν οἱ δὲ πάσαις ταῖς προσηγορίαις  
 ὀνομάζουσι· τὸν δὲ Ὅσιριν οἱ μὲν Σάραπιν οἱ δὲ Διόνυσον οἱ δὲ  
 Πλούτωνα οἱ δὲ Ἀμμωνα τινὲς δὲ Δία πολλοὶ δὲ Πάνα νενομί-  
 κασιν<sup>i</sup>.

xix. Me primigenii Phryges Pessinunticam nominant  
 deūm matrem : hinc Autochthones Attici Cecropiam Mi-  
 nervam : illinc fluctuantes Cyprii Paphiam Venerem : Cretes  
 sagittiferi Dictynnam Dianam : Siculi trilingues Stygiam  
 Proserpinam : Eleusinii vetustam deam Cererem : Junonem  
 alii : alii Bellonam<sup>k</sup> : alii Hecaten : Rhamnusiam alii : et qui  
 nascentis dei solis inchoantibus radiis illustrantur Æthio-  
 pes, Ariique, priscaque doctrina pollentes Ægyptii cæremo-  
 niis me prorsus propriis percolentes appellant vero nomine  
 Reginam Isidem<sup>l</sup>.

xx. Sic et Osiris, quod semper sepelitur et in vivido quæ-  
 ritur et cum gaudio invenitur, reciprocarum frugum et vivi-  
 dorum elementorum et recidivi anni fidem argumentantur.  
 sicut aridæ et ardentis naturæ sacramenta leones Mithræ  
 philosophantur<sup>m</sup>.

xxi. Τοιοῦτον γάρ τι καὶ παρ' Αἰγυπτίοις ὁ ζητούμενος καὶ ἀνευ-  
 ρισκόμενος . . ὑπὸ τῆς Ἰσιδος Ὅσιρις ἐμφαίνει : that is, διὰ τὸν  
 γινόμενον ἐπὶ χρόνον τινὰ τῶν σπερμάτων κατὰ γῆς ἀφανισμόν<sup>n</sup>.

xxii. Sed in his funeribus et luctibus, quæ vere sunt  
 funera quæ facta sunt, quorum exstant hodie quoque reli-  
 quia, (nam et sepulcrum Osiridis hodie in Ægypto est, et  
 cremati corporis reliquiæ cernuntur,) defensores eorum vo-  
 lunt addere physicam rationem, frugum semina Osirim di-  
 centes esse, Isin terram, Typhonem calorem. et quia matu-  
 ratae fruges calore ad vitam hominis colliguntur . . et rursus  
 adpropinquante hyeme seminantur, hanc volunt esse mortem  
 Osiridis cum fruges reddunt (corrigere quærent vel supple-  
 terræ) : inventionem vero, cum fruges geniali terræ fomento  
 conceptæ nova rursus cœperint procreatione generari<sup>o</sup>.

xxiii. Οὕτω δὲ καὶ τοῖς πολλοῖς καὶ φορτικοῖς ἐπιχειρήσομεν,

<sup>i</sup> Diodorus Sic. i. 25 : cf. Strabo, x.  
 iii.

<sup>k</sup> Cf. Plutarch, Sulla, ix. xxvii : Ju-  
 venal, vi. 510 : Lactantius, i. 21.

<sup>l</sup> Apuleius, xi. 257. Cf. Gruter,  
 lxxxi. 11 : Muratorius, lxxiii. 5 :

Cf. Plutarch, De Iside et Osiride, liii.

<sup>m</sup> Tertullian, Contra Marcionem, i.  
 13 : Opp. i. 24.

<sup>n</sup> Phornutus, cap. 28 : De Cerere et  
 Vesta : Opuscula Mythologica, p. 210.

<sup>o</sup> Julius Firmicus Maternus, De Er-  
 rore profanarum Religionum, cap. ii.  
 p. 6.



εἶτε ταῖς καθ' ὥραν μεταβολαῖς τοῦ περιέχοντος εἶτε ταῖς καρπῶν γενέσεσι καὶ σποραῖς καὶ ἀρότοις χαίρουσι, τὰ περὶ τοὺς θεοὺς τούτους συνοικειοῦντες, καὶ λέγοντες θάπτεσθαι μὲν τὸν Ὁσιριν ὅτε κρύπτεται τῇ γῇ σπειρόμενος ὁ καρπὸς, αἰθις δ' ἀναβιοῦσθαι καὶ ἀναφαίνεσθαι ὅτε βλαστήσεως ἀρχή. διὸ καὶ λέγεσθαι τὴν Ἰσιν αἰσθημένην ὅτι κύει περιάψασθαι φυλακτήριον ἔκτῃ μηνὸς ἱσταμένου Φαωφί, τίκτεσθαι δὲ τὸν Ἀρποκράτην περὶ τροπὰς χειμερινὰς, ἀτελῇ καὶ νεαρὸν, ἐν τοῖς προανθοῦσι καὶ προβλαστάνουσι· διὸ καὶ φακῶν αὐτῷ φυομένων ἀπαρχὰς ἐπιφέρουσι· τὰς δὲ λοχείους ἡμέρας ἑορτάζειν μετὰ τὴν ἑαρινὴν ἡσημερίαν<sup>p</sup>—Τὴν δὲ Ἰσιν μετὰ τὴν τελευταίην ἐξ Ὀσίριδος συγγενομένου τεκεῖν ἡλιτόμηρον καὶ ἀσθενῇ τοῖς κάτωθεν γυίοις τὸν Ἀρποκράτην<sup>q</sup>—Τὸ δὲ τῆς Ἰσίδος φυλακτήριον ὃ περιάπτεσθαι μυθολογοῦσιν αὐτὴν ἐξερμηνεύεται φωνῇ ἀληθῆς. τὸν δὲ Ἀρποκράτην οὔτε θεὸν ἀτελῇ καὶ νήπιον οὔτε χεδροπῶν τινὰ νομιστέον ... διὸ τῷ στόματι τὸν δάκτυλον ἔχει προσκείμενον, ἔχεμυθίας καὶ σιωπῆς σύμβολον<sup>r</sup>.

### SECTION III.—*On the Isia of the Egyptians. General Testimonies.*

i. Φασὶ γὰρ νομίμως βασιλεύοντα τῆς Αἰγύπτου τὸν Ὁσιριν ὑπὸ Τυφῶνος ἀναιρεθῆναι τοῦ ἀδελφοῦ, βιαίου καὶ ἀσεβοῦς ὄντος· ὃν διελόντα τὸ σῶμα τοῦ φονευθέντος εἰς ἕξ καὶ εἴκοσι μέρη δοῦναι τῶν συνεπιθεμένων ἐκάστῳ μερίδα, βουλόμενον πάντας μετασχεῖν τοῦ μύσους. . . τὴν δὲ Ἰσιν ἀδελφὴν οὖσαν Ὀσίριδος καὶ γυναικα... πάντα τὰ μέρη τοῦ σώματος πλὴν τῶν αἰδοίων εὗρεῖν<sup>s</sup>.

Διόπερ τὸν θεὸν τὸν παρ' αὐτοῖς καλούμενον Ἀνουβιν παρειαγοῦσι κυνὸς ἔχοντα κεφαλὴν, ἐμφαίνοντες ὅτι σωματοφύλαξ ἦν τῶν περὶ τὸν Ὁσιριν καὶ τὴν Ἰσιν<sup>t</sup>. ἔνιοι δὲ φασὶ τῆς Ἰσίδος προηγουμένους τοὺς κύνας καθ' ὃν καιρὸν ἐζήτει τὸν Ὁσιριν τά τε θηρία καὶ τοὺς ἀπαντῶντας ἀπείργειν. ἔτι δ' εὐνοϊκῶς διακειμένους συζητεῖν ὠρνομένους. διὸ καὶ τοῖς Ἰσείοις προπορεύεσθαι τοὺς κύνας κατὰ τὴν πομπήν, τῶν καταδειξάντων τοῦτο τὸ νόμιμον σημαινόντων τὴν παλαιὰν τοῦ ζώου χάριν<sup>u</sup>.

ii. Καὶ ταῦτα μὲν μέτριον εἰπεῖν, ὅπου γε θεὸς εὕρισκεται μεμελισμένος ὁ καλούμενος Ὁσιρις. οὗ καὶ κατ' ἔτος γίνονται τελεταὶ ὥς ἀπολλυμένου καὶ εὕρισκομένου καὶ κατὰ μέλος ζητουμένου· οὔτε γὰρ εἰ ἀπόλλυται νοεῖται οὔτε εἰ εὕρισκεται δείκνυται<sup>w</sup>.

<sup>p</sup> Plutarch, De Iside et Osiride, lxx.

Osiride, xiv. xxxviii. lxi.

<sup>q</sup> Ib. xix.

<sup>r</sup> Ib. lxxviii.

<sup>u</sup> Diodorus, i. 87.

<sup>s</sup> Diodorus Sic. i. 21. cf. 88.

<sup>w</sup> Theophilus ad Autolycum, i. 14.

<sup>t</sup> Cf. i. 18. 20: Plutarch, De Iside et

p. 38.

iii. *Ægypti incolæ* .... in sacris suis, quæ mysteria vocant, addunt tragica funera et funesta calamitatis metuendæ certamina. incestum cum sorore adulteriumque aiunt commissum : et hoc facinus severis mariti animadversionibus vindicatum. Isis soror est Osiris frater Typhon maritus. is cum comperisset Isidem uxorem incestis fratris cupiditatibus esse corruptam occidit Osirim artuatimque laceravit, et per omnes Nili fluminis ripas miseri corporis palpitantia membra projecit. Isis repudiato Typhone ut et fratrem sepeliret et conjugem adhibuit sibi Nepthen sororem sociam et Anubin venatorem. cui ideo caninum caput impositum est, quia lacerati corporis partes artificio canis vestigantis invenit. sic inventum Osirim Isis tradidit sepulturæ ...

Hæc est Isiaci sacri summa. in adytis habent idolum Osiridis sepultum. hoc annuis luctibus plangunt. radunt capita ... tundunt pectus, lacerant lacertos, veterum vulnorum rescant cicatrices, ut annuis luctibus in animis eorum funestæ ac miserandæ necis exitium renascatur. et cum hæc certis diebus fecerint, tunc fingunt se lacerati corporis reliquias reperire, et cum invenerint quasi sopitis luctibus gaudent ....

Nolite annuis sacris quærere funus alienum ... o miser homo invenisse te nescio quid gaudes cum animam tuam ex istis sacris per annos singulos perdas. nihil illic invenis nisi simulacrum quod ipse posuisti, nisi quod iterum aut quæras aut lugeas. quære potius spem salutis ... et cum veram viam salutis inveneris gaude, et tunc erecta sermonis libertate proclama, *Εὐρήκαμεν Συγχάρομεν*<sup>x</sup>—Populus *Ægypti* invento Osiri dixit *Εὐρήκαμεν Συγχάρομεν*<sup>y</sup>.

iv. Proserpinam raptam a Dite patre cum Ceres cum incensis faculis per orbem terrarum requireret, per trivia eam vel quadrvia vocabat clamoribus. unde permansit in ejus sacris ut certis diebus per compita a matronis exerceatur ululatus : sicut in Isidis sacris, ubi est imitatio inventi Osiridis, quem dilaniatum a Typhone ejus fratre Isis per totum orbem requisisse narratur. Juvenalis, vi. 534 :

Plangentis populi currat derisor Anubis<sup>z</sup>.

<sup>x</sup> Firmicus, ut supra, cap. ii. p. 2.

<sup>y</sup> Scholiasta, ad Juvenal. viii. 29 :  
Exclamare libet populus quod clamat Osiri  
Invento.

Cf. Seneca, De Morte Claudii Cæsaris, xiii. 3 : Opp. iv : Athenagoras, Legatio, cap. xix.

<sup>z</sup> Servius, ad *Æneid.* iv. 609.

v.

O pereuntum

Adsertor divum ! solus qui restituendos  
 Vulcani Martisque dolos Venerisque peroras,  
 Saturnique senis lapides Phæbique furores,  
 Iliacæ matris Megalesia, Bacchica Nysi,  
 Isidis amissum semper plangentis Osirin  
 Mimica vel ridenda suis sollemnia calvis<sup>a</sup>.

- vi. Μητέρι μὲν μακάρων μελεταὶ Τιτηνίδι 'Ρεῖη  
 αἰλοὶ καὶ τυπάνων παταγοὶ καὶ θῆλος ὄμιλος·  
 "Ἰσιδι δ' αὖ Φαρήη γονίμοις παρὰ χεύμασι Νείλου  
 μαστεύειν οἰστροισιν ἐὼν πόσιν ἄβρον "Οσιριν<sup>b</sup>.

vii. Κοπτὸς, πόλις Αἰγύπτου, εἰς ἣν φασι τὴν Ἰσιν ἀφικομένην  
 τὸν "Οσιριν τὸν υἱὸν ἀναζητεῖν· μαθοῦσαν δὲ αὐτὸν διεσπαράχθαι  
 τὴν κόμην τὴν ἑαυτῆς ἐκκόψαι, παρ' ὃ καὶ Κοπτὸς ὠνόμασται ἡ  
 πόλις. ἐδείκνυτο δὲ καὶ ὁ πλόκαμος τοῖς ἐπιδημοῦσιν αὐτόθι· ἅπι-  
 στὸν τι τριχῶν πλήθος ὅσον ἐξ ἀνθρώπου κεφαλῆς εἰκάσαι<sup>c</sup>—Τὴν  
 δ' Ἰσιν αἰσθομένην κείρεσθαι μὲν ἐνταῦθα τῶν πλοκάμων ἕνα, καὶ  
 πένθιμον στολὴν ἀναλαβεῖν, ὅπου τῇ πόλει μέχρι νῦν ὄνομα  
 Κοπτῶ. ἕτεροι δὲ τοῦνομα σημαίνειν οἴονται στέρησιν· τὸ γὰρ  
 ἀποστρεφεῖν κόπτειν λέγουσι<sup>d</sup>.

viii. Morem lugendi quidam dicunt Ægyptios invenisse :  
 eos enim primos Liberum quem Osyrim appellant a fratre  
 Typhone per insidias interemptum atra veste luxisse<sup>e</sup>.

ix. Ἑορτὴ τε παρ' αὐτοῖς οὐδέμια μελανείμων ἢ πένθιμος ἄγε-  
 ται, κοπετοὺς ἔχουσα καὶ θρήνους γυναικῶν ἐπὶ θεοῖς ἀφανίζο-  
 μένοις, ὥσπερ Ἑλλήσιν ἐπιτελεῖται περὶ τε Περσεφόνης ἀρπαγὴν  
 καὶ τὰ Διονύσου πάθη, καὶ ὅσα ἄλλα τοιαῦτα<sup>f</sup>—Καὶ χρόνος οὐδεὶς  
 μέχρι τοῦ παρόντος ἀπομαθεῖν ἢ παρανομήσαι τι περὶ τοὺς ὀργι-  
 ασμοὺς τῶν θεῶν ἔπεισεν οὐτ' Αἰγυπτίους οὐτε Λίβυας οὐτε Κελ-  
 τοὺς οὐτε Σκύθας οὐτ' Ἰνδοὺς<sup>g</sup>, κ', τ. λ.

- x. Θεσμοφόρον καλέω νερθηκοφόρον Διόνυσον,  
 σπέρμα πολύμνηστον πολυνύμου Εὐβουλήος,  
 ἀγνὴν τ' εὐιέρων τε Μίσην ἄρρητον ἄνασσαν,  
 ἄρσενα καὶ θῆλην διφυῆ λύσειον "Ἰακχον·  
 εἴ τ' ἐν Ἑλευσίνος τέρπῃ νηῶ θυόεντι,  
 εἴ τε καὶ ἐν Φρυγίῃ σὺν μητέρι μυστιπολεύεις,

<sup>a</sup> Prudentius, Contra Symmachum, lib. i. 625.

<sup>b</sup> Porphyry, Περὶ τῆς ἐκ λογίων φιλοσοφίας. Apud Euseb. Præp. Evang. v. 7. 408. 5.

<sup>c</sup> Etymologicum Magnum, p. 500. Κοπτὸς. Hence the Ἰσιδος τριχώματα,

in the Red Sea.

<sup>d</sup> Plutarch, De Iside et Osiride, xiv.

<sup>e</sup> Servius, ad Æneid. xi. 287.

<sup>f</sup> Dionysius Halic. ii. 19. De Romanis.

<sup>g</sup> Ibid. vii. 70.

ἡ Κύπρῳ τέρπῃ σὺν εὖστεφάνῳ Κυθερείῃ,  
 ἡ καὶ πυροφόροις πεδίοις ἐπαγάλλεαι ἀγνοῖς  
 σὺν σῇ μητρὶ θεᾷ μελανηφόρῳ Ἰσιδι σεμνῇ  
 Αἰγύπτου κατὰ χεῦμα σὺν ἀμφιπόλοισι τιθήναις <sup>h</sup>.

xi. Apis Peloponnesi proditus et in Ægypto Serapis nuncupatus. Æthiopicis solibus Isis furva, mœrens perditum filium et membratim conjugem laniatum <sup>i</sup>.

xii. Consideremus si placet ærumnas infelicium deorum. Isis filium perdidit <sup>k</sup>—Isidis Ægyptia sacra sunt, quatenus filium parvulum vel perdiderit vel invenerit. nam primo sacerdotes ejus deglabrato corpore sua pectora tundunt lamentantes, sicut ipsa cum perdidit fecerat. deinde puer producit quasi inventus et in lætitiā luctus ille mutatur. ideo Lucanus,

Nunquamque satis quæsitus Osiris <sup>kk</sup>.

hic est Osiris quem Serapim et Serapidem vulgus adpellat <sup>l</sup>.

xiii. Dispice Isidis ad hirundinem sistrum, et dispersis membris inanem tui Serapidis sive Osiridis tumulum. considera denique sacra ipsa et mysteria. invenies exitus tristes fata et funera et luctus atque planctus miserorum deorum. Isis perditum filium cum cynocephalo suo et calvis sacerdotibus luget plangit inquit: et Isiāci miseri cædunt pectora et dolorem infelicissimæ matris imitantur. mox invento parvulo gaudet Isis exsultant sacerdotes cynocephalus inventor gloriatur. nec desinunt annis omnibus vel perdere quod inveniant vel invenire quod perdant: ..... hæc tamen Ægyptia quondam nunc et sacra Romana sunt <sup>m</sup>.

#### SECTION IV.—Date of the Isia.

##### Testimonies.

i. Ταῦτα δὲ πραχθῆναι λέγουσιν ἐβδόμῃ ἐπὶ δέκα μηνὸς Ἀθὺρ, ἐν ᾧ τὸν σκορπίον ὁ ἥλιος διέξεισιν, ὅγδοον ἔτος καὶ εἰκοστὸν ἐκείνῳ βασιλεύοντος Ὀσίριδος· ἐνιοὶ δὲ βεβιωκέναι φασὶν αὐτὸν οὐ βεβασιλευκέναι χρόνον τοσοῦτον <sup>n</sup>.

ii. Ἐβδόμῃ ἐπὶ δέκα τὴν Ὀσίριδος γενέσθαι τελευτὴν Αἰγύπτου μυθολογοῦσιν <sup>o</sup>, κ', τ. λ.

<sup>h</sup> Orphica, Hymni, xlii. Μίσησ θυμύ-  
 αμα.

<sup>i</sup> Arnobius, i. p. 20.

<sup>k</sup> Lactantius, i. 17.

<sup>kk</sup> From Ovid, Metam. ix. 691.

<sup>l</sup> Lactantius, i. 21.

<sup>m</sup> Minucius Felix, xxi. 5.

<sup>n</sup> Plutarch, De Iside et Osiride, xlii.

cf. xlii.

<sup>o</sup> Ibid. xlii.



iii. Ἡ γὰρ λεγομένη κάθειρξις εἰς τὴν σορὸν Ὀσίριδος<sup>p</sup> οὐδὲν ἔοικεν ἄλλ' ἢ κρύψιν ὕδατος καὶ ἀφανισμόν αἰνίττεσθαι. διὸ μηνὸς Ἀθὺρ ἀφανισθῆναι τὸν Ὀσιριν λέγουσιν, ὅτε τῶν ἐτησίων ἀπολειπόντων παντάπασιν ὁ μὲν Νεῖλος ὑπονοστέϊ γυμνοῦται δὲ ἡ χώρα, μηκνυομένης δὲ τῆς νυκτὸς αὖξεται τὸ σκότος, ἡ δὲ τοῦ φωτὸς μαραίνεται καὶ κρατεῖται δύναμις· οἱ τε ἱερεῖς ἄλλα τε δρῶσι σκυθρωπὰ καὶ βοῦν διάχρυσον ἱματίῳ μέλανι βυσσίνῳ περιβάλλοντες ἐπὶ πένθει τῆς θεοῦ δεικνύουσι· (βοῦν γὰρ Ὀσίριδος εἰκόνα καὶ γῆν νομίζουσιν) ἐπὶ τέσσαρας ἡμέρας, ἀπὸ τῆς ἐβδόμης ἐπὶ δέκα ἐφεξῆς. καὶ γὰρ τὰ πενθούμενα τέσσαρα· πρῶτον μὲν ὁ Νεῖλος ἀπολείπων καὶ ὑπονοστών· δεύτερον δὲ τὰ βόρεια πνεύματα κατασβεννύμενα κομιδῇ, τῶν νοτίων ἐπικρατούντων· τρίτον δὲ τὸ τὴν ἡμέραν ἐλάττωνα γίνεσθαι τῆς νυκτὸς· ἐπὶ πᾶσιν ἡ τῆς γῆς ἀπογύμνωσις, ἅμα τῇ τῶν φυτῶν ψιλότῃ τηνικαῦτα φυλλορροούτων.

Τῇ δ' ἐννάτῃ ἐπὶ δέκα νυκτὸς ἐπὶ θάλασσαν κάτεισι, καὶ τὴν ἱερὰν κίστην οἱ στολισταὶ καὶ οἱ ἱερεῖς ἐκφέρουσι, χρυσοῦν ἐντὸς ἔχουσαν κιβώτιον· εἰς ὃ ποτίμου λαβόντες ὕδατος ἐγχέουσι, καὶ γίνεται κραυγὴ τῶν παρόντων ὡς εὐρημένον τοῦ Ὀσίριδος. εἴτα γῆν κάρπιμον φερῶσι τῷ ὕδατι, καὶ συμμίζαντες ἀρώματα καὶ θυμιάματα τῶν πολυτελῶν ἀναπλάττουσι μνηοειδὲς ἀγαλμάτιον· καὶ τοῦτο στολίζουσι καὶ κοσμοῦσιν, ἐμφαίνοντες ὅτι γῆς οὐσίαν καὶ ὕδατος τοὺς θεοὺς τούτους νομίζουσι<sup>q</sup>.

iv. Καὶ παρ' Ἑλλήσιν ὅμοια πολλὰ γίνεται περὶ τὸν αὐτὸν ὁμοῦ τι χρόνον οἷς Αἰγύπτιοι δρῶσιν ἐν τοῖς ὁσίοις. καὶ γὰρ Ἀθήνησι νηστεύουσιν αἱ γυναῖκες ἐν Θεσμοφορίοις χαμαὶ καθήμεναι, καὶ Βοιωτοὶ τὰ τῆς Ἀχαιᾶς μέγαρα κινουσί, ἐπαχθῇ τὴν ἑορτὴν ἐκελύνην ὀνομάζοντες, ὡς διὰ τὴν τῆς Κόρης ἀάθοδον ἐν ἄχει τῆς Δήμητρος οὔσης. ἔστι δὲ ὁ μὴν οὗτος περὶ πλειάδα, σπόριμος, ὃν Ἀθὺρ Αἰγύπτιοι Πυανεψιδῶνα δ' Ἀθηναῖοι Βοιωτοὶ δὲ Δαμάτριον καλοῦσι<sup>r</sup>.

#### SECTION V.—*Deductions from the above testimonies; rule of the Isia.*

i. It is to be inferred from the preceding testimonies, that the Egyptian Isia were confined to one month of their calendar; that which was called Athyr. There can be no doubt that Athyr was the third month in their calendar. The stated month of the Egyptian Isia in after-times then was

<sup>p</sup> Cf. De Iside et Osiride, xiii.

<sup>q</sup> Ibid. xxxix.

<sup>r</sup> Ibid. lxix.

the third in their calendar: and if it was the third in after-times it must have been so from the first. But if it was the third Egyptian month from the first; it must have been the third primitive month also from the first: between which and the Egyptian there never was any difference. We may take it for granted then that the stated month of the Isia was always the third in their own calendar, and the third in the primitive calendar also. Consequently, if the Isia had really an historical date among the Egyptians; if they had not existed among them from time immemorial; we cannot hesitate to infer that they must have been purposely fixed to the third month, at the time when they came into being.

ii. It is also to be inferred from the preceding testimonies, that, as the Isia were fixed to the third month, so they were fixed to the 17th day of this month. And we may argue from this fact as from the other, that, if they had an historical beginning among the Egyptians, when they were purposely attached to this one month they were purposely attached to this one day of this month. This conclusion is just as important as the other, and there can be no reasonable doubt concerning either; unless the Isia were really an observance, of the nature described above and proper to the Egyptians, which nevertheless never had a proper beginning. The name of this proper month of the Isia indeed, in after-times, was Athyr. Whether it had such a name before the institution of the Isia, is another question. It makes no difference to the inference for which we are contending, whether it had or not. Athyr was always the third month of the Egyptian calendar. An observance attached to the 17th of Athyr was necessarily attached to the 17th of the third month; and if it was ever so attached for the first time, it must have been on purpose: and this is all for which we are contending at present.

iii. It is also to be inferred from the preceding testimonies, that the Isia began on the 17th of their proper month and lasted till the 20th; that is, the first day of the Isia was the 17th of their proper month, and the last was the 20th. Consequently they lasted *four* days in all. We learn this indeed only from the testimony of Plutarch; but Plutarch's testimony to the rule of the Egyptian Isia, in this particular, is

confirmed by what we had occasion to shew in a former part of our work<sup>s</sup>, of the rule of the Roman Isia, according to which those also lasted four days; and by the fact which we established at the same time, that the rule of the Roman Isia, when that ceremony was adopted in the Roman calendar, was taken directly from the rule of the Egyptian. If this was the actual rule of the Isia, A. D. 40–41, and in the time of Plutarch, we may take it for granted it was always so; for there is no reason to suppose it ever varied. Dionysius of Halicarnassus does not hesitate to affirm that in their most characteristic observances and ceremonies, (of which the Isia were the most remarkable,) the Egyptians had never made any change. But if this was *always* the rule, it must have been so from the first: and therefore, if the Isia had only an actual date and an historical beginning, they must have been purposely appointed to last four days and four days only; from the 17th to the 20th of their proper month.

iv. It is also to be inferred from the preceding testimonies, that the Egyptian Isia were a ceremony of a *mixed* character; and that there were two parts or processes in this ceremony, one of them very different from the other. Our authorities indeed do not all agree in representing these different parts alike, nor in specifying and describing the circumstances of each alike; and we may perhaps have something to say hereafter on this appearance of discrepancy among them, as well as in explanation of it. But no one can deny that they all agree in representing the Isia in general as not of an uniform character from first to last; but as beginning in one manner, and ending in another; as made up of two parts, so different from each other that both could not be entitled alike to the name of a feast; that for one part of their duration they were altogether of a mournful character, and for another altogether of a contrary one; that they began with commemorating some loss or some death, and ended with commemorating some recovery or some coming to life again; that the former, while it lasted, was an occasion of dejection and melancholy attested by every outward expression of grief and despair; the latter, as soon as it

<sup>s</sup> Supra, Dissertation xii. ch. iv. sect. iii. vol. iii. 453.

began, was ushered in with a revulsion of feeling, was welcomed and made known by every ebullition of transport and joy to which men are liable on the sudden recovery of any thing which they value, and of which they have been deprived, and which they suppose themselves to have lost for ever.

v. With regard to the date of the transition from one of these parts of the ceremony to the other, and from one of these states of feeling to the other; it is evident that it could not be collected from any of the preceding testimonies but that of Plutarch: and according to this it might be supposed at first sight to have been the 19th of the proper month. It appears at least, from the letter of his account, that the time in the ceremonial of the Isia, which immediately preceded the change in its character of which we are speaking, was the 19th of the month in the evening; when the priests and the sacred bull went in procession to the sea: and supposing the whole ceremonial to have lasted four days, beginning on the 17th at evening, (according to the primitive rule of the noctidiurnal cycle,) and ending on the 21st at evening, (the close of the 20th, according to the same rule,) the 19th at evening would be the middle of the ceremony; and the whole ceremony, on this principle, must have been equally divided between the two parts of which it consisted; each of them lasting two days, reckoned according to the primitive rule.

It cannot indeed be denied that the language of Plutarch in this part of his account is ambiguous: and that learned men have inferred from it that the actual date, in the ceremonial of the Isia, of the supposed discovery of Osiris, was the 19th of Athyr,<sup>t</sup> the third day of the ceremony itself. It is certain however, even from the testimony of Plutarch, that the Isia lasted *four* days. It is not less certain that the discovery of Osiris was the last part of the ceremony; that it was made on the *last* day, and celebrated on *that* day; and consequently only on *one* day. If the discovery then was really made on the 19th of the proper month, the last day of the Isia was the 19th of the proper month; and yet Plutarch himself attests that it was the 20th. We have seen<sup>t</sup>

<sup>t</sup> *Supra*, Diss. xii. ch. iv. sect. i. note. vol. iii. 445.



that, when the Romans for particular reasons commanded the performance of a *sacrum Isidis* B. C. 89–88, they took the date of the ceremony from the 20th of Athyr, as being the stated date of that part of the Isia which only it was consistent with the Roman gravity at that time, and with the principle on which they had acted till then, to adopt and sanction. It is clear then that there must be some misapprehension of the true meaning of Plutarch's statement, in this respect, if it is collected from it that the date of the discovery of Osiris, and of the last day of the Isia, was the 19th of the month.

In explanation however of his meaning, it is sufficient to observe that even the 20th of the month, according to the primitive or Egyptian rule, would begin on the 19th, according to the Julian; and it would be an obvious and natural mistake in one, who was not thinking of that distinction, to speak of the 20th of Athyr between sunset and midnight, according to one of these rules, as if it were the same with the 19th between sunset and midnight, according to the other. We reconcile Plutarch to himself if we suppose that this is what he has done in this instance; and that the 19th of Athyr, at night, of which he speaks here as if of the end of that day, is really the beginning of the 20th, according to the Egyptian rule of the beginning and the ending of every day.

The date of this procession to the sea then, just before the discovery of Osiris, was the 20th of Athyr at sunset, or soon after. It took place therefore, exactly at the end of the third day of the ceremony, according to the Egyptian rule; and it ushered in that day in the ceremony which was intended both to change its character until then, and to conclude it; according to the same rule also. It is not to be supposed that this rule would be so strictly observed in any thing as in the ritual of the Isia: and since it thus appears that the last part of the ceremony, which first changed its character and made it such as properly to deserve the name of a festival, was beginning in the evening on the proper day; this is sufficient to imply that the first part also must have done the same; and consequently that every day of the

ceremony from first to last must have been reckoned according to the primitive rule.

We may conclude our observations on this subject, by summing up the substance of what we have been saying in the following propositions :

i. That the Egyptian Isia were confined to one month, the third in the order of the calendar, the month which is known to the learned by the name of Athyr. ii. That the stated date of the Isia in this third month was the 17th; that is, they began on the 17th of this month. iii. That the Isia lasted four days, beginning on the 17th and ending on the 20th of this month. iv. That these four days were devoted to distinct parts or processes, both of which together made up the ceremonial of the Isia in general: that one of these parts commemorated the loss or the death of Osiris, the other his recovery or his coming to life again: that the first three days were devoted to the former, and the fourth day to the latter: that the first part of the Isia consequently was of a mournful, a melancholy, and funereal character, and in no sense of the term entitled to the name of a feast; the last part was of a totally different description, and such as properly to be called a festival or holiday. Lastly, that all this was of annual occurrence; repeated once every year and in the due course of things; but never more than once, nor ever that once except at the proper time.

SECTION VI.—ii. *Personal character of Osiris and Isis, or what was denoted by each, and what was the relation of one to the other.*

Again, with respect to the personal character of Osiris and Isis respectively, and with regard to the relation of one of these characters to the other; it must be inferred from the preceding testimonies i. That the Egyptian Osiris, according to one construction and to one explanation of his personal character, was a type of the sun; and the Egyptian Isis, in the corresponding view and construction of her personal character, was a type of the moon. ii. That the Egyptian Osiris, according to another conception of his personal character, was a type of the Nile; and the Egyptian Isis, in her

corresponding relation to Osiris, was a type of the land of Egypt. iii. That the Egyptian Osiris, according to a third idea and representation of his personal character, was only another name for the Grecian Dionysos; and the Egyptian Isis, as the correlative of Osiris in that capacity, was only another name for the Grecian Demeter.

These three representations of the personal character of Osiris, and of the corresponding character of Isis, comprise the substance of all which is to be found in the statements above produced; i. e. in the testimony of antiquity to each of these points: and it is clear from each of these alike, that, whatsoever was the true nature of either of these conceptions in itself, it was inseparably connected with the other. The personal expression of the one found its proper correlative in the personal expression of the other; the idea of Osiris implied the idea of Isis, and *vice versa*. It was impossible to separate the Egyptian Osiris from the Egyptian Isis, or the Egyptian Isis from the Egyptian Osiris; any more than the moon from the sun, or the land of Egypt from the Nile, or, according to the habitual association of such ideas and of such persons in the minds and apprehensions of the Greeks, the Hellenic Demeter from the Hellenic Dionysos.

With regard to this last view and construction of these two characters in particular, to say that Osiris was the Egyptian conception of the Hellenic Dionysos, and Isis the Egyptian expression of the Hellenic Demeter, might be true or not; and yet, in any case, it would be only to shift the question: for the problem would still have to be solved, what was to be understood by the Hellenic Dionysos, and what by the Hellenic Demeter, both in themselves, and in relation to each other? The time may come when it may be necessary for us to attempt the solution of this problem also: but until then it must be reserved. All that we shall say in reference to it at present is that the Greeks did not mistake nor misrepresent either the personal character of the Egyptian Osiris and of the Egyptian Isis, or their personal relation to each other, in concluding the one to be only another conception of their own Dionysos, and the other another conception of their own Demeter; and among those who so

represent them we may reckon Herodotus, the oldest of our Grecian authorities ; and one of the best informed too. But we must also observe that it would have been strange indeed had they been mistaken ; since, when the truth comes to be known in reference to this subject, it turns out to be actually the case that the first idea of the Hellenic Demeter was borrowed from that of the Egyptian Isis, and the first conception of the Hellenic Dionysos from that of the Egyptian Osiris ; with this difference only, that both the idea and the name of their own Demeter were derived by the Greeks for themselves from the Egyptian Isis ; the idea and the name of their Dionysos were borrowed from the Egyptian Osiris, but not first by the Greeks, nor for themselves. They came to the Greeks from another quarter. And it is in our power, by means of the information still discoverable on that point, to define and to specify both the quarter *from* which, and the time *at* which, and the person *through* whom, this conception of the Egyptian Osiris in the derivative form of Dionysos was first introduced among the Greeks.

With regard to the other two views and explanations of these characters, and of their relation to one another ; it cannot be denied that Osiris, as the type of the Nile, and Isis, as the type of the land of Egypt, would be eminently Egyptian in the conception, and peculiarly well adapted one to the other. Nor could we undertake to say that this was not an actual construction of these characters and an actual view of their proper relation to each other ; which might be the first to suggest itself to the popular apprehension, and might be the most currently received among the Egyptians of antiquity. Some of our testimonies are express to the point that between Osiris and the Nile, and between Isis and the land of Egypt, the common people, (and even the more learned and better informed,) made no distinction. It is impossible therefore to reject this particular construction, and this particular explanation, of these characters and of these relations, as one which was never entertained and never proposed ; nor on good grounds too. We should object to it merely as supposed to be the only probable, much less the only possible, view which could be taken of them. The character of Osiris and the correlative character of Isis



admitted of being contemplated in many points of view ; founded however on the same idea at bottom, and with a principle of agreement running through all such modifications of the same conception, which made one of them all. That which we have just mentioned was one of these ; as obvious and as natural, as any : nor are we at liberty to doubt whether it was actually received among the Egyptians or not. And yet even this was not the only possible construction of these characters and of these relations ; nor even the first and the proper one.

The third construction and third explanation of both then, viz. that which identified Osiris with the sun, and Isis with the moon, would seem to be the only one left ; if the testimony of antiquity at least has rightly defined these characters and these relations at all. If three constructions and three explanations of these characters and these relations are all which have been left upon record ; either all must be alike true in general, or this one must be the truth in particular. In our opinion indeed, the former is the real state of the case ; that each of these constructions and explanations is true in itself, but none of them to the exclusion of the other two. We do not hesitate therefore to say that this third construction and this third explanation is as just and as real as either of the other two ; as just in itself and with respect to the foundation on which it rested, and as real in point of fact, or as an actual conception of these characters and of their relation to each other. But we have observed of the other two, that one of them was certainly a derivative or borrowed conception of each ; and the other was not necessarily a primary and original one. It remains to be considered with respect to this third construction and third explanation, whether that too is to be resolved into any thing else, or whether, in point of fact, it is not both prior to the other two, and ultimately the source of each.

SECTION VII.—*On the first and original form of the Polytheism of antiquity, and on the worship of the sun and the moon in particular.*

The history of idolatry both in the Bible and out of the Bible, and the history of mythology in connection with idolatry every where, demonstrates the fact that though the

first objects of worship, distinct from the one true God, (whose essence has nothing in common with the material creation,) were universally derived from the visible world and from the objects of sense; they were taken at first not from the earth but from the heavens: so that the conclusion arrived at by those, who have investigated this subject most carefully, that the oldest form of idolatry discoverable among mankind is Zabæanism, or the worship of the host of heaven, is true in point of fact; and is confirmed both by the testimony of Scripture, contemporary with the origin of this first and earliest form of idolatry itself, and by the testimony of human history.

And yet it is very necessary that a distinction should be made on this point, to which, as it appears to us, sufficient attention has not been paid; viz. That the first objects of forbidden worship were not taken indiscriminately from the heavens themselves; nor from every thing perceptible in the heavens. Men had merely to lift up their eyes to the heavens to see that there was only one object discoverable there by day, which was calculated to impress them of itself with the idea of divine, or to which they could of their own accord transfer the name and attributes of divinity; viz. the sun: and only one object perceptible by night, exhibiting the appearance of divine and excellent, in comparison of any thing else equally beautiful and equally glorious which could be seen in the sky besides. The sun we say is the only sensible object, possessed of a nature which might be mistaken for divine, discoverable in the heavens by day; and the moon is the only such object discoverable there by night. The stars are sensible objects, as well as the sun and the moon; and objects discoverable in the heavens, and beautiful and glorious objects also: but they are no where visible by day, and they appear to shine only by permission of the moon at night; only to retain and to exhibit their proper beauty and brightness in proportion as the moon, for the time, withdraws and suppresses her own. The sun and the moon too were every where perceived, and every where felt, to be directly connected with the earth; and with the being and well-being of every thing in and upon the earth. Between themselves and the stars, from their own wants, their own instincts, and their own convictions, men were no

where conscious of any such connection from the first, nor in the nature of things could be, any more than at present; and it was long before they imagined it; for astrology, properly so called, howsoever generally received, and howsoever widely diffused among mankind, in the course of time, comparatively speaking was of late introduction: and whatsoever the power and influence with which it ultimately invested the stars, there is no proof that it was any where actually in existence, not even among the Chaldeans, until long after the first appearance of the oldest species of false religion, in that form of Zabæanism of which we are speaking. The sun and the moon too were evidently related one to the other; the former as a superior or primary, the latter as an inferior or secondary, being of the same order and of the same nature in general. It was always known, (it must have been easy at least to perceive,) that by some secret and mysterious sympathy, or through some fatal and inevitable necessity, even the moon was dependent on the sun; the moon was subordinate to the sun: and that her proper share of a common nature, (however superior to every thing else,) the external or sensible tokens of the divinity which she possessed in common with the sun, and the consequent power of good or of harm to any thing else, inseparable from the Divine nature, which she possessed along with the sun, were derived to her from the sun. The association of the sun and the moon, in the common apprehension of divine, above any thing in external nature besides, was the most natural imaginable; yet of the former as the superior, and of the latter as the subordinate, principle even in the divinity itself. And when the idea of the distinction of sex, even in the Divine nature, had once come to be introduced, it is easy to see that the sun must every where be regarded as the proper type of the masculine, the moon as that of the feminine, principle in the same Divine nature; and yet the one be as necessarily associated with the other in the Divine nature, as the personal distinction of the male with that of the female in the same general idea of human nature.

The prosecution of our own work (the subject of which is properly the history of time and of its civil measures among mankind from first to last) has forced upon us the consider-

ation of another subject, which at first sight would appear to have had very little connection with the proper business of our own work, that of the Rise of Idolatry and of False Religion ; the course which the polytheism of antiquity appears to have run ; the form which it first assumed ; the modifications and changes which it experienced ; the amalgamation of its different systems one with another ; until at last it seemed to be stript of what was before its most striking and most distinctive peculiarity, its very multiplicity itself—and to be every where reducible to the same simple and abstract conception, in which it first took its rise ; that, viz., of two principles, or of two persons, in the same divine nature in general, one of them summing up and comprehending in itself all the masculine conceptions of the deity which had been any where realized, the other, all the feminine : the former every where identified at last with the sun, and the latter with the moon. For this is exactly that state in which the polytheism of antiquity was found *de facto* by the Christian religion on its first appearance ; and exactly that view of its nature in general, and of the relation of one part of this system to another in particular, which was inculcated by the different schools of philosophy both at this very time and long after it also. This subject, we say, has been forced on our own consideration by the proper business of our work. For howsoever improbable it may appear *a priori*, it is nevertheless true, and we hope in due time to lay the proofs of its truth before our readers themselves, that nothing is so closely connected with the rise and progress of polytheism, as the history of time and of the civil calendar. There is scarcely a correction of the primitive form of the calendar, after a certain point of time, which is not found to be associated with a particular phasis of this system, of which it serves ever after as the constant memorial and the standing witness ; and more extraordinary disclosures of this kind have yet to be made, than we could venture to state at present without the necessary accompaniment of the proofs of their truth.

The first conception then which mankind appear to have formed of an object of worship, (distinct from their proper Creator and Lord,) for these, and for similar, reasons which might be assigned, was derived from the sun and the moon ;



the former the most glorious of the heavenly luminaries discoverable by day, the latter the most illustrious and remarkable which could be perceived by night. These two they associated together as the proper representatives of the Divine nature, and as each possessed of that nature alike; but each in its proper relation to the other, and each in its proper proportion in comparison of the other; the one as the type of the masculine, the other as that of the feminine, principle in the same Divine nature itself. And while they made both superior to every thing else, they made one of them dependent upon and subordinate to the other. And though they established from the first the closest and most indissoluble connection between them, it was after all only the union of a common nature through distinct sexes and in distinct persons; in which priority and precedence must be given to the masculine and active over the feminine and passive principle, the former typified by the sun, the latter by the moon.

Such was the beginning of the polytheism of old; and such the unmixed and simple form which it at first assumed. The statements of antiquity are true, which represent the case accordingly; that the first objects of adoration among mankind every where, as soon as they ceased to recognise the one true object of worship, were the sun and the moon; and next to them, as a certain number or class of the stars in contradistinction to the rest, and as more closely connected with their own earth, or more easily believed to be so, than the rest of the stars in general—the planets. The testimony of the calendar confirms these statements, and every where ascertains the fact that the first and simplest conception of the supreme principle was that of a Being in which there was a distinction of persons, and a distinction of sexes, analogous to that which exists in human nature also; but not a distinction of nature, except what might be implied in this distinction of sex itself. And to this no name was given originally, but one which was taken from the necessary and inherent relation of a nature, confessedly divine and superior, to every thing created, and therefore inferior and dependent; the name of king, as applied to the masculine, and that of queen, as applied to the feminine, person in this community

of the divine essence ; a name varying according to the different language of each calendar, but in each instance meaning the same thing, and designating the same person ; and that person, in one of these cases, the sun, and in the other, the moon ; the former the king, the latter the queen *absolutely*, or the former the king of heaven, the latter the queen of heaven, in particular. Such was the meaning of Baal, or Bel, or Belus, or Deuneus, as predicated of the former, and that of Beltis, Urania, Cœlestis, or the like, applied to the latter.

Now though we do not say that this is what is really to be understood by the Egyptian Osiris and by the Egyptian Isis respectively, viz. the sun, under the name of the one, and the moon, under that of the other ; yet neither do we say that what is truly to be understood by either is independent of this, and is not ultimately to be traced up to it. The conceptions of which we are speaking were much older than these Egyptian ones of Osiris and Isis. They were of a nature to admit of enlargement and extension in various ways ; and they were calculated *a priori* to issue out at last in a form and a shape very different in appearance from that which they had assumed at first.

In its original and simplest conception, the idea of the principle of divinity, even as symbolized and represented to the senses by its most appropriate type, the sun, differed little (if at all) from that of an invisible, secret, and mysterious influence, diffused through all nature, animate and inanimate alike, filling all space, and every where present, every where active, and in every thing, and at once ; yet sensibly, or tangibly, or visibly in nothing ; the *anima mundi* in short, attested by its constant effects and operations, yet not to be detected in any other way. To which unseen and mysterious principle, from this view of its nature and its relation to every thing else, the ancient Egyptians seem to have given the appropriate name of Amoun ; which in their language is said to have had the sense of *invisible* and *inscrutable*<sup>u</sup> : and that too even while recognising the sun as its proper type or symbol, through the affix of -ra to this name

<sup>u</sup> Plutarch, De Iside et Osiride, ix. Iamblichus, De Mysterioriis, sect. viii. cap. iii. p. 158. l. 5-10.

of Amoun, (Amoun-ra;) for Ra, or Phre, it is agreed, was the Egyptian name for the sun <sup>w</sup>.

But in the course of time the same conception found a different expression; and one more level to the apprehensions of those who were conversant only with sensible objects. It assumed the anthropomorphous character. It became God in the form of man or of woman; retaining the essential superiority of the Divine nature, yet endued with human organs; and what was still more extraordinary, and at first sight even inconsistent, subjected to human passions and infirmities, or to passions and infirmities resembling human. From this time forward, those conceptions of the Divine nature which had discovered their first types only in the heavens, and only in the sun and in the moon, with no distinction in that nature, like what exists in the human, but that of person and that of sex, were no longer confined to the circle of the heavens, but were brought down to the earth: yet still as attached to their first expressions and to their first representatives the sun and the moon. But the sun and the moon were now no longer the types of an abstract and unseen principle, pervading all nature, yet distinct from it: they were this nature itself no longer distinguishable from the principle of divinity within it. They were this principle of unseen life and energy, in its material and visible form; the abstract conception of animal and sensible and vegetable nature, summed up in its first principles. It was still however the first conceptions of divinity, and their appropriate types, which were thus brought down to the level of sense; and were thus identified at last with external and material nature. It was still the sun and the moon, the king and the queen of heaven, which were now contemplated in a new point of view, yet without any change in their relation to each other. And now, as was naturally to be expected from such an amplification (or rather corruption) of the first and simple conception of the Divine nature as this, the inferior, feminine, or passive principle in this common nature found its appropriate expression in the earth, and from the moon was transferred to the earth; while the superior, the

<sup>w</sup> Egyptian Antiquities in the British Museum, part i. p. i. Bunsen, Book i. sect. vi. A. viii. p. 387. Cf. i. p. 369; p. 366, 367.

masculine, and active one, without losing its proper relation to the other, continued to be still represented by the sun. For there was nothing in nature distinct from the sun, to which this idea could be transferred without prejudice to the relation of the sun to the system of the universe in general, as the source of light and life, and the centre of motion and activity ; but the moon, even retaining its proper relation to the sun, was predisposed to pass into the earth.

Upon this principle, it is not difficult to comprehend that Osiris and Isis among the Egyptians might be neither altogether distinct from the sun and the moon, nor yet absolutely the same with them ; that Osiris might denote the sun, and Isis the earth ; Osiris might represent the Nile, and Isis the land of Egypt ; and yet Osiris might be ultimately resolvable into the sun, and Isis into the moon. These are only enlargements of the same idea ; transitions from one step in a certain process to another. The later conceptions imply the earlier : but all such secondary developments of a common idea are to be explained only by their relation to the primary ; which in this case is simply that of the sun and the moon, associated in a common divine nature ; each as the individual representation of a different person, and of a different principle, but only in that common nature which necessarily united them to each other, while it opposed them to every thing else of an inferior nature, as the king and the queen of the universe to the rest of the universe itself.

It could not therefore be false to represent Osiris as the sun and Isis as the moon ; or Osiris as the sun and Isis as the earth, or Osiris as the Nile and Isis as the land of Egypt ; as our different testimonies have been found to represent them. And yet the particular point of view in which each of these characters is to be regarded, both in itself and in relation to the other, is not, in our opinion, exactly represented in any of them. There was something in the true view of these characters and of these relations, to which none of the above testimonies has distinctly alluded ; yet of which the more profound and philosophical of the ancients were nevertheless aware, and which they have left us the means of discovering from their testimony itself. And to the explanation of this we shall now proceed.



SECTION VIII.—*On the true explanation of the personal character, and the relation to each other, of Osiris and Isis.*i. *Osiris and Isis the types of the Cereal powers of nature.*

The first apprehension of the truth on this particular point is derivable from those allusions of antiquity, in which it is implied that Osiris and Isis among the Egyptians, in addition to any other view of their personal character, and of their proper relation to each other and to every thing else, must have been regarded as the great Cereal Powers or Principles, to whose influence the being and well-being of vegetable life in particular were supposed to be due; that these were the first to create, or to discover and bring to light, the fruits of the ground and of trees: that corn and wine, and the other productions of vegetable nature, which are ultimately the sustenance and support of animal life also, were first bestowed on mankind by them, or were first pointed out and made known for the benefit of mankind by them.

- i. Primus aratra manu sollerti fecit Osiris,  
 Et teneram ferro sollicitavit humum.  
 Primus inexpertæ commisit semina terræ,  
 Pomaque non notis legit ab arboribus.  
 Hic docuit teneram palis adjungere vitem,  
 Hic viridem dura cædere falce comam.  
 Illi jucundos primum matura saporēs  
 Expressa incultis uva dedit pedibus<sup>x</sup>.

ii. Ἐγὼ Ἰσίς εἰμι ἢ βασίλισσα πάσης χώρας . . . ἐγὼ εἰμι ἢ πρώτη καρπὸν ἀνθρώποις εὐροῦσα<sup>y</sup>.—Πρώτον μὲν γὰρ παῦσαι (τὸν Ὅσιριν καὶ τὴν Ἴσιν) τῆς ἀλληλοφαγίας τὸ τῶν ἀνθρώπων γένος, εὐρούσης μὲν Ἰσίδος τὸν τε τοῦ πυροῦ καὶ τῆς κριθῆς καρπὸν . . . τοῦ δὲ Ὅσίριδος ἐπινοησαμένου τὴν τούτων κατεργασίαν τῶν καρπῶν . . . μαρτύριον δὲ φέρουσι τῆς εὐρέσεως τῶν εἰρημένων καρπῶν τὸ τηρούμενον παρ' αὐτοῖς ἐξ ἀρχαίων νόμιμον. ἔτι γὰρ καὶ νῦν κατὰ τὸν θερισμὸν, τοὺς πρώτους ἀμηθέντας στάχυν θέντας τοὺς ἀνθρώπους, κόπτεσθαι πλησίον τοῦ δράγματος, καὶ τὴν Ἴσιν ἀνακαλεῖσθαι καὶ τοῦτο πράττειν ἀπονέμοντας τιμὴν τῇ θεῷ τῶν εὐρημένων, κατὰ τὸν ἐξ ἀρχῆς τῆς εὐρέσεως καιρόν. παρ' ἐνίαις δὲ τῶν πόλεων καὶ

<sup>x</sup> Tibullus, i. vii. 29.<sup>y</sup> Diodorus Sic. i. 27.

τοῖς Ἰσείοις ἐν τῇ πομπῇ μετὰ τῶν ἄλλων φέρεσθαι καὶ πυθμένας πυρῶν καὶ κριθῶν, ἀπομνημόνευμα τῶν ἐξ ἀρχῆς τῇ θεῷ φιλοτέχνως εὐρεθέντων<sup>z</sup>.

iii. Βασιλεύοντα δ' Ὀσirin Αἰγυπτίους μὲν εὐθὺς ἀπόρου βίου καὶ θηριώδους ἀπαλλάξαι, καρπούς τε δείξαντα καὶ νόμους θέμενον αὐτοῖς καὶ θεοὺς δείξαντα τιμᾶν· ὕστερον δὲ γῆν πᾶσαν ἡμερούμενον ἐπελθεῖν· ἐλάχιστα μὲν ὅπλων δεηθέντα, πειθοῖ δὲ τοὺς πλείστους καὶ λόγῳ μετ' ὧδῆς πάσης καὶ μουσικῆς θελγομένους προσαγόμενον· ὅθεν Ἑλλησι δόξαι Διόνυσῳ τὸν αὐτὸν εἶναι<sup>a</sup>.

iv. Ὀσίρις ὁ καὶ Διόνυσος μετὰ Ἰσιδος τῆς αὐτοῦ γυναικὸς τῆς καὶ Δήμητρος καλουμένης καὶ στρατοῦ πλείστου μετὰ μουσικῶν καὶ αὐλῶν περιήρχετο, τὴν γεωργίαν καὶ φυτουργίαν διδάσκων· ὅθεν αὐτὸν καὶ Διόνυσον ἐκάλεσαν ὡς εὐρετὴν φυτουργίας· τὴν δὲ Ἰσιν Δήμητραν ὡς τὰ τῆς γῆς δωρουμένην καὶ γεωργίαν διδάσσαν<sup>b</sup>.

v. Tages sulcis emicuit et ritum statim gentis superūmque monstravit. Ammon apparuit cum cornibus arietinis et vestimento lanitio, ac sitientibus undam fontis exhibuit. quid loquar eos, qui primi mortalibus usum rerum majoraque commoda præbuerunt? ut vitem Dionysius apud Thebas, Osiris apud Ægyptios haustum vini usumque comperiens, frumentum Isis in Ægypto, Triptolemus apud Atticos, docuere; eademque Isis lini usum sementemque monstravit<sup>c</sup>.

#### SECTION IX.—ii. *Osiris and Isis the types of the generative powers of nature.*

We have not yet however attained to the true view of the personal character of Osiris and Isis, and of their actual relations to each other. The first clear and distinct perception of these things will be conveyed by the following passage of Plutarch, which we have purposely reserved for the last:

Ἡ γὰρ Ἰσίς ἐστι μὲν τὸ τῆς φύσεως θῆλυ καὶ δεκτικὸν ἀπάσης γενέσεως, καθὼς τιτηνὴ καὶ πανδεχὴς ὑπὸ τοῦ Πλάτωνος, ὑπὸ δὲ τῶν πολλῶν, μυριώνυμος κέκληται, διὰ τὸ πάσας ὑπὸ τοῦ λόγου τρεπομένη μορφὰς δέχεσθαι καὶ ἰδέας. ἔχει δὲ σύμφυτον ἔρωτα τοῦ πρώτου καὶ κυριωτάτου πάντων, ὃ τὰγαθῷ ταυτὸν ἐστι, κἀκεῖνο ποθεῖ καὶ διώκει· τὴν δ' ἐκ τοῦ κακοῦ φεύγει καὶ διωθεῖται μοῖραν· ἀμφοῖν

<sup>z</sup> Diodorus Sic. i. 14.

<sup>a</sup> Plutarch, De Iside et Osiride, xiii.  
Cf. Diodorus, i. 17, 18.

<sup>b</sup> Tzetzes, ad Hesiod. Opp. et Dies

32.

<sup>c</sup> Marcianus Capella, ii. 39.

μὲν οὖσα χώρα καὶ ὕλη, ῥέπουσα δὲ ἀεὶ πρὸς τὸ βέλτιον ἐξ ἑαυτῆς, καὶ παρέχουσα γεννᾶν ἐκείνῃ καὶ κατασπείρειν εἰς ἑαυτὴν ἀπορροίας καὶ ὁμοιότητας, αἷς χαίρει καὶ γέγηθε, κυῖσκομένη καὶ ὑποπιμπλαμένη τῶν γενέσεων. εἰκὼν γάρ ἐστὶν οὐσίας ἐν ὕλῃ ἣ γένεσις, καὶ μῆλημα τοῦ ὄντος τὸ γινόμενον<sup>d</sup>.

In its primary meaning this view of the personal character and of the reciprocal relations in question is purely metaphysical, and agreeable to that which would be taken of them in the philosophical system of Plato; which resolved every thing into matter and form, ἡ ὕλη and τὰ εἶδη. According to this view Osiris was the type of the latter, Isis that of the former; Isis was matter, Osiris was form; Isis at least was the passive subject, endued with the capacity of form; Osiris was the active and plastic principle, by whose agency all kinds of form were impressed upon it. But the true meaning of this representation, refined and abstract and metaphysical as it is, translated into popular language and brought down to the level of common sense, every one must perceive to be neither more nor less than this: That the Egyptian Osiris and the Egyptian Isis, in their respective personal and individual characters, and in their reciprocal relations to each other, were the true types of the masculine and the feminine principle throughout universal nature. The most careful consideration which we have been able to bestow on this Egyptian fable and on all its circumstances, and the most particular comparison of it with every cognate fable of antiquity, (founded in the same ideas as this, and differing from it only in accidental circumstances,) which we have been able to institute, have left us no alternative but that of coming to *this* conclusion: That, according to the original view of these two characters, and of their proper relation to each other, which must have been taken by the first authors of the fable, they were regarded, selected, and proposed as the types of the productive powers of universal nature; as the active and the passive principles concerned in the same natural process, by which life is bestowed, and propagated, and perpetuated both in the vegetable and in the animal kingdom of nature, and wheresoever it has existence; the masculine and the feminine powers, each of them alike

<sup>d</sup> De Iside et Osiride, liii. cf. lviii. lxxix.

concerned in the process, and neither of them capable of contributing any thing towards it independent of and without the other; the active and the masculine being represented by Osiris, the passive and the feminine by Isis.

In coming to this conclusion respecting the character and relations of these celebrated conceptions of Egyptian mythology, we believe that we have at last attained to the only just and consistent, the only adequate and complete, view of each. They were consequently neither the sun and the moon, nor the sun and the earth, nor the Nile and the land of Egypt, in the abstract; nor yet independent of those ideas, but something originally derivable from them, and ultimately resolvable into them again. They were the natural powers of generation and production, the agents and instruments in a process, which begins in the vegetable and even in the material world, but is propagated upwards, and is consummated, and attains to its most perfect and complete effect, in the animal and sensible; and in which two things only are concerned, an active principle and a passive; neither of them, according to the views and conceptions of such things which must have been formed by the first authors of a theology and of a cosmogony like this, to be considered independent of the sun and the moon in general, or, in *their* individual case, of the Nile and of the land of Egypt in particular, and yet neither of them to be regarded as absolutely the same with them.

The simple and unmixed construction of these two mythological characters, in which we have found ourselves compelled to acquiesce finally, is that of the representatives of these generative powers of nature; of the two agents equally concerned in the universal work of production and reproduction. And we might argue, even from the historical or traditional circumstances of the fable, (as far as they can be depended on,) that they must have been so essentially the types of these powers, and so inseparably connected with this process, in the opinion of the authors of the fable themselves, that the first effect of their agency and cooperation, in subserviency to this process and in their proper relation to each other, took place even before they were born: Arueris or Horus the elder, (the Horus or Apollo



of the Greeks,) as the Egyptians designated the son of Osiris and Isis, according to the fable having been the fruit of their intercourse even in their mother's womb<sup>c</sup>.

In our opinion however the strongest and clearest proof of the truth of the explanation of these characters, and of their proper relation to each other, which we have just given, is an unquestionable matter of fact ; as old as the first conception of such characters, and the first invention of the fable connected with them : which fact is the consecration of the PHALLUS ; the natural instrument of the process of which we have been speaking, and the external and visible symbol thereof also. It cannot be necessary to prove that to consecrate the organ of generation was to deify the generative powers ; and to associate this symbol with the mysteries of Osiris and Isis was to recognise Osiris and Isis as the mystical types of those powers.

Now, though we would not undertake to maintain that this fable of the Egyptians, as reported by Diodorus and Plutarch and by others of the ancients, has been handed down exactly as it proceeded from its original authors ; yet thus much may be confidently asserted concerning it ; That the supposed destruction of Osiris by Typhon made a part of the fable from the first ; and the supposed dispersion of the fragments of his body by Typhon also, and the supposed search after those fragments, instituted by Isis, and the supposed recovery of all at last, but one, made a part of the fable from the first. And that this one part of the body of Osiris, which once belonged to it as much as the rest, but was never again recovered after being once disposed of in a certain manner by Typhon, nor ever restored to it again ; was this particular member, the natural instrument of the process of generation and production ; may be taken for granted also. Why indeed this *one*, of all the members which make a part of the human body, should have been so lost to the body of Osiris, as never to have been restored to it again, or so disposed of by his enemy Typhon, as never to be found again ; these are different questions ; to which answers might very possibly be returned, shewing that the authors of the fable had probably their reasons for each of

<sup>c</sup> Plutarch, De Iside et Osiride, xii. liv.

these suppositions ; were we concerned at present with the *reasons* of those suppositions, and not simply with a matter of *fact*, that of the supposed loss of this one member to the body of Osiris, so as never to be restored to it again ; and that of what was done to compensate for its loss and to supply its place ever after.

Now it is agreed upon all hands, and it appears from the fable itself, that the expedient adopted for this purpose was the substitution, instead of this lost member, of the likeness or symbol of this member, which is known in Greek by the name of Phallus, though its Egyptian name we are told was Han<sup>f</sup>. We may have occasion to collect the testimonies of antiquity to the consecration of the Phallus, in connection with a different calendar ; and therefore we shall not digress to do so at present : but we refer our readers to two of these testimonies, which are the most important for our present purpose, and abundantly sufficient too ; that of Diodorus and that of Plutarch<sup>g</sup> : from each of which it plainly appears that the consecration of the Phallus was the appointment of Isis herself, to supply the place of this lost member of the body of Osiris, and to receive the honours, due to that, in its stead.

There can be no doubt then that, as the loss of this member, so the substitution of the Phallus for it, made part of the fable from the first : and that this substitution of the Phallus, in the room of this member, was its consecration ; and that each was as old as the origin of the fable and the institution of the Isia themselves. And when we consider that this consecration is expressly attributed to Isis, (the only surviving member of the common relation which she had shared with Osiris before his supposed death,) we cannot have a stronger proof than this fact supplies, of the nature of that relation in which both she and Osiris had previously stood to each other ; that of the two correlative principles in the common work and process, of which such an emblem as this was both the natural instrument before, and the most appropriate symbol ever after.

It cannot, we apprehend, admit of a question in the opi-

<sup>f</sup> Bunsen, i. sect. iv. C. 301. note 196 :  
cf. Wilkinson, second series, ii. xv.  
283.

<sup>g</sup> Diodorus Sic. i. 21, 22. 88 : iv. 6 :  
Plutarch, De Iside et Osiride, xviii. xii.  
xxvii. li.

nion of any person possessed of common sense ; that, where-soever the Phallus was set up and treated as sacred, there the natural powers of generation and production were recognised, and even deified, in their grossest and plainest form. The testimony of antiquity is unanimous that this abomination was first conceived, and first realized, in Egypt : that the worship of the Phallus, and the sanction of every impurity to which it ultimately led, and to which it could not fail to lead, under the name of religion, took its rise in Egypt. Other nations adopted the same symbol, and consecrated it with the same cloke of religion, and commemorated it with the same impurities ; but they only followed the example of the Egyptians, and only imitated the practice of the Egyptians.

The fable of Osiris and Isis however demonstrates that even in Egypt the worship of the Phallus was first connected with that fable : it was engrafted upon that fable, and it grew out of it. The recognition and worship of Osiris and Isis, as divine, in Egypt, and the recognition and deification of the Phallus also, were not only contemporaneous in point of fact, but kindred in meaning and import too. There was no difference between them, except what there must necessarily be between a sign of any kind, and that which is signified by it. The inference from such a connection as that of the Phallus with the conception of Osiris and Isis is inevitable ; that whatsoever the philosophers of old might think or say in explanation of this connection, and in what manner soever they might endeavour to gloss over and palliate the grossness of the simple truth, and whatsoever the modern philosophical admirers of ancient Egypt may think or may say about it also ; the Egyptian Osiris and the Egyptian Isis, according to the view and construction of their proper character, and of their proper relation to each other, conceived and proposed by the original authors of the fable, were neither more nor less than personifications of the two natural powers of generation, fecundity, and production : the active and the passive, the masculine and the feminine, agents in the same operation and process, by the joint instrumentality of which all existence and life both vegetable and animal was not only at first

produced, but has been ever since propagated, maintained, and perpetuated. If these have a natural instrument, it must be that which was denoted by the Phallus of antiquity; and therefore of two such impersonations, and standing in such a relation to each other, the most appropriate type or symbol must always have been the Phallus.

And having arrived at this conclusion respecting both the personal character and the reciprocal relations of these two conceptions of the Egyptians; we are better prepared to enter on the question of the true date of the institution of the Isia, and of the connection of that date with the epoch of the Sothiacal period\*.

\* It may here be observed that, according to Seneca, the Egyptians divided the universe and the elements of things in general between two great principles, a masculine and a feminine; so that every thing, according to them, was combined in *duads* or couplets of this kind: a view of the constitution and relation of universal nature, which it requires no argument to prove must have grown out of their conception of Osiris and Isis, and of the relation of each of these to the other; of the one as the great type of the masculine and active principle, of the other, as that of the feminine and passive: and therefore it must have been later than this too.

“Ægyptii quatuor elementa fecere. deinde ex singulis bina, marem et feminam. aërem marem judicant qua ventus est, feminam qua nebulosus et iners. aquam virilem vocant mare, muliebrem omnem aliam. ignem vocant masculum qua ardet flamma, et feminam qua lucet innoxius tactu. terram fortiolem marem vocant, saxa cautesque; feminæ nomen assignant huic tractabili ad culturam<sup>b</sup>.”

Firmicus also observes that fire in like manner among the Persians was supposed to be both masculine and feminine<sup>i</sup>; and Herodotus tells us<sup>k</sup> that Mithras was the name of Urania (i. e. the moon) among them, as well as of the sun. We may have something to say in explanation of this notion on a future occasion. The Egyptian doctrine and distinction on this subject is further illustrated by Horapollon. As 1st: Μητέρα δὲ γράφοντες . . . ἡ Ἀθηναῖν ἡ Ἡραν . . . γῦπα ζωγραφοῦσιν . . . Ἀθηναῖν δὲ καὶ Ἡραν, ἐπειδὴ δοκεῖ παρ’ Αἰγυπτίοις Ἀθηναῖν μὲν τὸ ἄνω τοῦ οὐρανοῦ ἡμισφαίριον ἀπειληφέναι, τὸ δὲ κάτω Ἡρα. ὅθεν καὶ ἄτοπον ἡγοῦνται ἀρσενικῶς δηλοῦν τὸν οὐρανὸν, (μὴ) μέντοι θηλυκῶς τὴν οὐρανὸν, διότι καὶ ἡ γένεσις ἡλίου καὶ σελήνης καὶ τῶν λοιπῶν ἀστέρων ἐν αὐτῷ ἀποτελεῖται, ὅπερ ἐστὶ θηλείας ἔργον. καὶ τὸ τῶν γυπῶν δὲ ὡς προείπον<sup>l</sup> γένος θηλειῶν ἐστι γένος μόνον. δι’ ἣν αἰτίαν καὶ παντὶ θηλυκῷ ζωδίῳ (sign of the zodiac) οἱ Αἰγύπτιοι γῦπα ὡς βασιλείῳ ἐπιτιθέουσιν· ἀφ’ οὗ καὶ πᾶσαν θεὸν (ἵνα μὴ περὶ ἐκάστης γράφων

<sup>b</sup> Natural. Quæst. iii. cap. xiv.

<sup>k</sup> i. 131.

Opp. v.

<sup>l</sup> De Error, cap. v. p. 16.

<sup>1</sup> In the former part of this chapter, (i. 11.)



## CHAPTER IV.

*On the true date of the introduction of the worship of Osiris and Isis into Egypt; and on the reasons which determine it to the epoch of the Sothiacal period.*

SECTION I.—*The Isia necessarily as old as Osiris and Isis, and vice versa.*

WE begin the final consideration of this further question with observing that, among all the rites of the Egyptians, none appears to have been so closely connected with the two great objects of the national worship, Osiris and Isis, none so exclusively appropriated to these two, as the Isia. In fact it would be difficult to say what ceremony there was in the ancient ritual of Egypt, dedicated to these two divinities, besides the Isia: so that, when we have specified this one observance, we have particularized every thing which the calendar contained, or is known at present to have contained, attesting the existence of two such objects of the national worship, and the estimation in which they were held.

Such being the case; it would be almost a contradiction in terms to suppose there were ever two such objects of worship in Egypt as Osiris and Isis, and yet no Isia; or ever such a

μηκύνω τὸν λόγον)\* διὰ τῆς γυπὸς σημαίνουσιν Αἰγύπτιοι<sup>m</sup>. ii. Ἐφαιστον δὲ γράφοντες κάνθαρον (καὶ γῦπα) ζωγραφοῦσιν. Ἀθηναῖν δὲ γῦπα (καὶ κάνθαρον) δοκεῖ γὰρ αὐτοῖς ὁ κόσμος συνεστάναι ἕκ τε ἀρσενικοῦ καὶ θηλυκοῦ (sup. καὶ ἐπὶ μὲν τοῦ Ἐφαιστοῦ τὸν κάνθαρον ζωγραφοῦσιν) ἐπὶ δὲ τῆς Ἀθηναῖς τὴν γῦπα γράφουσιν. οὗτοι γὰρ μόνοι θεῶν παρ' αὐτοῖς ἀρσενοθήλεις ὑπάρχουσι<sup>n</sup>.

This latter passage is corrupt. The words in brackets, καὶ γῦπα, after κάνθαρον, and καὶ κάνθαρον, after γῦπα, should be omitted. The beetle was the type of a masculine principle, endued with the power of the feminine also, in the work of production; and therefore a proper emblem of Phthas. The vulture was the type of a feminine, similarly endued with a masculine power: and therefore the proper symbol of Athena, or Neith.

\* There is an hiatus here in the original, which we have filled up conjecturally with these words, διὰ τῆς γυπὸς σημαίνουσιν. m i. 11. n i. 12.

ceremony in the Egyptian calendar as the Isia, and yet no Osiris and Isis. Both these things must have come into existence together. They are necessarily connected in their origin, and in their relation to each other. If therefore the worship of Osiris and Isis in Egypt did not exist from time immemorial, neither could the Isia have done so; if the Isia had a beginning among the Egyptians, so also must the worship of Osiris and Isis have had: and if the time of the former can be defined and specified, that of the latter will be defined and determined also. The first question then is, What is the date of the Egyptian Isia? Whether there is such a date, and whether it can be assigned? In answer to which question we shall endeavour to shew that there is actually such a date, that it is actually discoverable, and that it actually coincides with the beginning of the Sothiacal period.

SECTION II.—*On the first argument of the connection of the Isia of the Egyptians with the Sothiacal period.*

Now the first argument of the connection of this institution with this period, and of the rise of the worship of Osiris and Isis in Egypt at the same time also, may be derived from the name given to Isis herself; as Isis-Sothis. Sothis was the name of the dog-star in Egypt: and Isis-Sothis is Isis the dog-star. The name identifies Isis with Sothis; and through Sothis with the Sothiacal period: for on this principle the Sothiacal period was and must have been the period of Isis as much as that of Sothis. The phenomenon of the heliacal rising of Sirius might have been, or rather must have been, much older in that country than the Sothiacal period; and the observation of this phenomenon by the Egyptians might have been much older also. The name of Sothis too, applied to the dog-star, might be older in Egypt than the Sothiacal period; and older than the name of Isis also: but, as composing the name of Isis in the form of Isis-Sothis, one of these names can be no older than the other, nor either of them older than the Sothiacal period.

If then Isis was never known in Egypt except as Isis-Sothis, i. e. if she was known and recognised in Egypt as

Isis-Sothis, as soon as she was known and recognised at all ; it follows that neither the idea nor the name of Isis could have been known or recognised in Egypt except in conjunction with Sothis, and, through Sothis, with the Sothiacal period. Those who should object to this connection of the Egyptian Isis from the first with Sothis and the Sothiacal period would be bound to shew that she was ever known or recognised in Egypt by an older name, or by a more appropriate name, than this of Isis-Sothis. This is the name which is given her on the monuments, as her most proper and most characteristic title. This is the emblem or symbol of the dog-star itself, in the hieroglyphical mode of representing it ; a star, in conjunction with the figure of Isis—both together denoting Isis-Sothis. Such too is virtually the name which she claims for herself in the inscription at Nysa : Ἐγὼ εἰμι ἥ ἐν τῇ ἄστρῳ τῇ κυνὶ ἐπιτέλλουσα : in which it is very observable that the preposition employed is ἐν, not σύν : “ I am she that rises *in* the star,” not along *with* the star in question : for that was to identify herself with the star ; and to make all its phenomena and all its energies and operations her own, in and through the star. There cannot at least be a question, whether any native Egyptian, who had been taught habitually to look upon Isis and Sothis in this relation to each other, could ever have separated them even in idea ; could even have imagined there was ever a time when Isis was not already Sothis, and Sothis Isis ; when the goddess Isis had not such an external and visible symbol of her divinity as Sothis, or Sothis was any thing but the visible symbol and type of the goddess Isis.

The conclusion is consequently inevitable ; that Isis and Sothis having always been connected together, Isis and the Sothiacal period must always have been connected too. One must be as old as the other ; but neither can be older than the other, while this relation holds good between them. If then there was actually a succession of Sothiacal periods among the Egyptians ; Isis might be older than any one of those periods, except the first : and to find the true age of Isis we must go back to the epoch of the first of these periods. But if there was never actually more than one Sothiacal period among them, and this period was that which

began B. C. 1350 ; the antiquity of Isis-Sothis in Egypt, (of Isis the same as Sothis, of Isis as Sothis who rose every year heliacally on the stated epoch of this period, and for the first time on that day at the beginning of the period,) cannot be greater than B. C. 1350.

SECTION III.—*On the second argument of the connection of the Isia with the Sothiacal period: rise of institutions similar to the Isia, and in imitation of the Isia, in other parts of the world.*

It has been already seen that the Isia, among the Egyptians, were attached from the first to one particular month of their calendar, and to one particular day of that month ; and that this particular month was the third, and this particular day was the 17th of the third month. And the calendar of the Egyptians both at this time and long after it being altogether the same with the primitive, the 17th of the third month in the civil calendar of the Egyptians, and the 17th of the third in the civil calendar common to all mankind, both at this time and long after it were absolutely one and the same. It follows that the stated date of the Egyptian Isia, once fixed to the 17th of the third month in their proper calendar, was thereby fixed to the 17th of the third month too in the common calendar of all mankind : and as long as the proper Egyptian calendar and this common primitive calendar continued to be the same, and to preserve the same relation to each other, the 17th of the third month in either was the 17th of the third month in the other ; and *vice versa*.

This being the case, and nothing being supposed to be known as yet respecting the Isia of the Egyptians, except these two facts, that they were fixed to one month, the third in their proper calendar, and to one day, the 17th of that month ; the attention of the reader is next to be directed to a very remarkable phenomenon, which the history of the primitive calendar, *after* a certain time, but not *before*, brings to light ; viz. a succession of modifications, corrections, and changes of the primitive calendar itself on the cyclico-Julian principle, which we are able to trace in the retrograde order, (that is, in the order of the recession of the



equable in the Julian or natural year,) all round the Julian or natural year, from the point at which it began, almost to the same point again: corrections or modifications of the primitive calendar, on this common principle, agreeing with each other not only in that respect, but in a still more remarkable and characteristic circumstance, that of being all attached to the same month of the primitive calendar, the third, and to the same day of this month, the 17th.

To understand this statement, it is necessary the reader should refer to the synopsis of primary derivative calendars, proposed in a former part of our work°. It will be seen from this that the first of these corrections on the cyclico-Julian principle, to which we allude, bore date Athyr 17 æra cyc. 2701 Sept. 25 B. C. 1306; the next, Athyr 17 æra cyc. 2705 Sept. 24 B. C. 1302; and so on: so that setting out from this year, æra cyc. 2701 B. C. 1306, and taking this equable term of Athyr 17, as the index of all such corrections in their proper order of time, along with him, the reader would have it in his power to reckon up as many as FIFTEEN, all set down in our synopsis, all agreeing in the nature of the correction itself, all in being so many generic not individual types of derivative calendars, obtained in the same way exactly from the primitive, and all in the still more remarkable circumstance of bearing date on the same equable term, the 17th of the third primitive month for the time being: the first of these corrections being the Indian, Athyr 17 æra cyc. 2701 Sept. 25 B. C. 1306, the last being the Bithynian, Athyr 17 æra cyc. 3838, Dec. 24 B. C. 170.

The fact, which we have just pointed out, in the majority of these instances (and even in all, as we ourselves have seen reason to conclude) is confirmed by proofs which place it out of question; and the fact being admitted, it must be allowed to be something curious and remarkable in the highest degree; something which could not be resolved into an accidental concurrence of circumstances, in so many instances, in such different quarters of the world, and at such great distances of time asunder: and if it could not be explained on that principle, something which must have been the effect of design. Nothing but design, or reasons

° Dissertation vii. ch. iii. sect. ix. vol. i. 586.

of a common kind, motives and causes which must have everywhere alike influenced such corrections, and alike determined the process of such corrections, could account for a coincidence like this, extending over a period of 1136 years, exemplified in fifteen different cases of the kind at least, yet all in the same way, and substantially to the same effect; beginning in India, the most remote quarter of the world of which any thing was known to the ancients, and ending in Sweden or Norway, of which, until a very late point of time, they knew absolutely nothing.

What, we may ask, must have been thought of this fact, had nothing been known concerning it except the fact itself? How difficult must it have appeared to account for it, on any principle which should exclude the idea of chance! When however we compare with this particular fact, brought to light by the subsequent history of the calendar, another fact, already made known by the same history; viz. That from a point of time, 44 years earlier at least than the first of these subsequent changes, a correction of the primitive calendar had already been made, attached to the same month, and to the same day of the month; we shall begin to perceive that in this latter fact there is something like a foundation for the explanation of the former of the same kind. When we are further informed that this previous correction, attached to this one month and to this one day of that month, had been made in Egypt; and when we take into account the ascendancy and influence of Egypt in ancient times, and the deference paid to its authority by the rest of the world; we shall see that the ground of the explanation in question is rendered still more secure by the knowledge of this coincidence also. But lastly, when we add to the preceding facts the knowledge of two more, which the history of the calendar also brings to light; *one*, that this earlier correction of the calendar in Egypt was accompanied by the first institution of the characteristic rites of Osiris and Isis in that country; and the *other*, that these subsequent corrections elsewhere, in each of *these* instances also, were accompanied by the introduction of similar rites and observances, differing from the Isia of the Egyptians only in name; and, in these cases too,

with the first conception and recognition of abstract ideas and typical representations, identical in every thing but names with the Osiris and Isis of the Egyptians; we cannot hesitate to draw the inference to which such premises naturally lead, that these subsequent changes and corrections of the calendar, and every thing connected with them, were not only later than the Egyptian, but copied from the Egyptian, and purposely conformed to the Egyptian.

The decision of the question then is ultimately reducible to *this* issue; Could the date of the first of these secondary corrections of the primitive calendar, purposely modelled upon the Egyptian, come within 44 years of the epoch of the Sothiacal period, and yet the original Egyptian correction go back to an indefinite extent beyond the epoch of that period itself? by these corrections being only understood not merely changes of the calendar, or in the reckoning of time, but the introduction along with them also of conceptions and characters, as objects of worship, analogous to Osiris and Isis; and the institution of rites and ceremonies similar to the Isia, attested by such contemporary changes of the calendar, and through them kept up and perpetuated ever after. For if not, this argument in our opinion is decisive, (and every unprejudiced person must think so too,) that the first conception of the Egyptian Osiris and Isis themselves, the first institution of the Egyptian Isia, and the first modification of the primitive calendar, the sign and seal of both, may be as old as the epoch of the Sothiacal period, but cannot be older.

We find then, in point of fact, a series of changes in the primitive calendar, each of them coming into being at the proper time on the 17th of the primitive Athyr, the stated date of the Isia in the Egyptian calendar: and along with these we find objects of worship introduced, new and unknown until then, but founded in ideas and conceptions of things, exactly analogous to those which gave birth to the Osiris and the Isis of the Egyptians; representations and types of the very same abstractions, which were represented and typified by the Osiris and the Isis of the Egyptians; representations and types, identical in every thing but names with the Egyptian Osiris and Isis: and along with these

objects of worship, thus for the first time introduced, we find also the institution of rites and ceremonies proper for such objects of worship, analogous in their case to the Isia of the Egyptians in relation to Osiris and Isis; new and unheard of in these instances also, before such corrections of the calendar, but as durable and lasting ever after, as these changes of the calendar themselves. We meet with the evidence of the commencement of this process in quarters distinct from Egypt, within 44 years of the epoch of the first Sothiacal period; and we meet with proofs of the continuance of the process in quarters distinct from Egypt, as late as 1136 years after. Nor could we undertake to say that the same thing did not continue to be done in some quarter or other, distinct from Egypt, even later than that; or that actual proofs to that effect some time or other may not yet come to light.

There is but one conclusion which can be drawn from these premises: viz. that all this was done, in subsequent instances, in imitation of the example set by the Egyptians, and out of deference to the authority of the Egyptians. Of the Egyptians alone it does not appear that the same thing was done by them, or among them, from the influence of example, or out of deference to authority of any kind. In this course of innovation on the original form of religion among mankind, and of the consequences to which it ultimately led, the Egyptians took the initiative. They stand alone, as having acted from an original motive and impulse of their own, howsoever produced; and they have not only to answer for the guilt of corrupting themselves, in the first instance, but for the cumulative guilt of corrupting the rest of mankind by their example. But the earliest date of any such innovation or any such corruption, in these other instances, being only B. C. 1306, it is incredible that even in Egypt the example of any such innovation could first have been set, from a much earlier date than the epoch of the Sothiacal period, B. C. 1350.

With respect to the proofs of the facts, which we have thus asserted, it would be premature to enter upon them at present. They belong to the history of the corrections and changes of the primitive calendar. All that we can say with



propriety on this subject is That, in each of these instances, along with the correction of the calendar, new objects of worship, never before proposed in that capacity, are seen to have come into existence: That these were associated together, as male and female, generally in distinct persons and under distinct names, yet sometimes in one person combining both the male and the female nature, and so far hermaphrodite, and of either sex, or of both at once: That there was nothing to distinguish these conceptions and these objects of worship from the Osiris and the Isis of the Egyptians but what was purely accidental and indifferent: That all these were types and impersonations of the active and the passive principles of universal production, as much as those two: That each of these, in every instance, had no doubt a name of its own; though it has happened that in some of these cases we know the name only of one, that is, the name of one only has been traditionally handed down to us; in others, we know the names of both: and in these (which are of course the only strictly parallel cases of the kind) we can discover no difference between these names and these persons, and the relation of either to the other, more than between those of Osiris and Isis, and the persons and the relations denoted by them.

In Scripture, for example, after a certain point of time, we find the masculine principle in these conceptions and these relations designated generally by the name of Baalim, and the feminine by that of Ashtaroth; the former of which properly denotes *Lords*, *δεσπόται*, *κύριοι*, but the latter denotes something which would be strictly applicable only to the feminine or passive principle in the process of universal production. But in connection with particular calendars and particular countries—in India, this masculine principle received the name of Deuneus, the feminine that of Durga: in Arabia, the former was called Ourotalt, the latter Alilat: in Crete, the masculine principle appears as Kronos, the feminine as Rhea: in Phrygia, the masculine conception was represented by Attes, the feminine by Cybele: in Lydia also, the former appears to have been called Attes or Attis, but the latter obtained the name of Kybebe: in Cyprus, the masculine was known to the Greeks of after-times by the name of Adonis,

the feminine by that of Aphrodite; in Greece itself, the feminine principle was represented by Demeter: in Syria, the masculine person was Tammuz or Thammuz, the feminine Astarte: in Gaza, the masculine was Dagon or Siton: in Ascalon, the feminine was Derketo: in Babylon, the name of the masculine principle was Bel, that of the feminine Beltis, and also Mylitta: in Ninus, the feminine principle was known by the name of Aterga, Adarga, Adergatis, Atergatis, or Derke; the masculine, by some name analogous to that of the Indian Deuneus, the meaning of which was "king." In Sidon, the masculine principle was represented by Eshmoun; the feminine, according to the Greek version of the name, by Astronœ: in Damascus, the masculine principle of the relation had the name of Adad, the feminine that of Rimmon; or a compound principle, representing both, had a name compounded of both, that of HadadRimmon. And so in other instances, which we cannot more particularly specify at present.

SECTION IV.—*Argument from the typical nature of the Isia themselves; and the equal relation of Osiris and Isis both to vegetable and to animal life of every kind.*

It has been seen that the ceremony of the Isia consisted of two distinct parts: nor is there any fact upon record concerning this Egyptian rite which may be more certainly depended on than that of this distinction. During the first of these parts, the external appearance of the ceremony was altogether funereal and lugubrious. The priests and ministers of Osiris and Isis were dressed in black, and were more closely shaven, and more completely deprived of their hair, than at any time before. The images were clothed in the same funeral attire; and weeds of mourning were thrown round the sacred bull itself, the type of Osiris in person. Every thing wore the same air of grief and dejection. Something was supposed to be lost, for which they were mourning all this time; or something to have died, the death of which was to be lamented with every expression of regret.

When the proper time for the second part of the ceremony was arrived, all this was supposed to be suddenly reversed,

and to be succeeded by a contrary state of things, and a corresponding change of feelings. What had been lost was all at once found again: what had apparently perished and disappeared for ever was suddenly perceived to be coming to life again. From this moment the ceremony assumed the character of a festival, properly so called. This change of things was welcomed and ushered in with corresponding emotions of joy and transport; and these formed the last and concluding part of the ceremony.

The simple description of the Egyptian Isia then amounts to this: That they commemorated every year a loss of some kind, and also a recovery the same in kind; a death in some sense or other, and a coming to life again in the opposite sense: a *ζήτησις* or *ἀναζήτησις* and an *εὔρεσις*, a *θάνατος* or *ἀποβίωσις* and an *ἀναβίωσις*: That the same person was the subject both of the loss and of the recovery, both of the death and of the coming to life, and this person the mystical Osiris: That, while he was still the subject of the loss or of the death, the Isia were altogether of a funereal character, the very reverse of a feast; but when he was now the supposed subject of those opposite affections, the character of the Isia too was changed, and they assumed a form and expression befitting a festival, which they had never done until then.

The question therefore which naturally suggests itself here is this, What is to be understood by the *ἀναζήτησις* and the *εὔρεσις*, thus opposed to each other in the different parts of the same ceremony? or what by the *ἀποβίωσις* and the *ἀναβίωσις*, thus alike commemorated by it? and in what sense could the same person be the subject of each? And in answer to this question we may observe: There is a well known physical fact, (open to observation, however superficial, every where,) which would supply a simple and obvious solution of the problem, did we not allow its very simplicity to prejudice us against the presumption of its truth. No one requires to be reminded that, when the seed is committed to the ground, it is not only buried by that act, and so far lost from view, but, as the first and most direct consequence of the action of the ground on the seed, it rots and decays; its substance and texture are dissolved; it dies apparently and perishes, in passing through the very process which is de-

stined to bring it to life. Every one knows however, that this temporary concealment of the seed out of sight, by its being buried in the ground, is only preliminary to its re-appearance above the ground in the shape of the plant; this corruption or dissolution of a substance of one kind is only preparatory to the formation of a substance of another kind; this death which precedes in appearance is only the prelude to the more real and permanent life which must spring up out of it. And this being the simple state of the case with respect to the natural process of vegetation, that the seed is first of all committed to the ground, and is thereby lost out of sight, and dies; and presently after reappears in the shape of the plant, and is thereby restored to sight, and comes to life: and such being the corresponding state of the case in the economy of the Isia, that one part of the same ceremony commemorated a loss, and the other a recovery, of the same kind; one part a death of some proper subject, and the other its coming to life again; no one could say that such a ceremony and such an explanation of the ceremony as that proposed above, so far as they are thus confronted and compared together, are not critically adapted to each other; nor that it would not be a just and consistent explanation of both parts of the ceremony of the Isia, and of the circumstances of each, to understand the mystical subject of such a loss and such a recovery, or of such a death and such a coming to life again, of the principle of vegetable life, which the seed always contains within itself, but cannot develope and expand into the plant, without being itself first corrupted and dissolved, and so far dying and being lost.

The simplicity of this explanation, as we have observed, ought to be no ground of objection to its truth. And we shall see by and by, that even this first and most obvious view of the fable and its circumstances involves a much deeper meaning. The question for our consideration is not what is the most profound and philosophical construction of the fable, but what is the best calculated to explain it. That Osiris was actually regarded as the type of vegetable life, annually extinguished in the dissolution and destruction of the seed, and annually repaired and renewed in the plant, there can be no doubt. Claudius Rutilius, in his *Itinerarium*,



has occasion to particularize the day which in the Roman calendar of his time was devoted to the mystical *εὔρεσις*; a day still the fourth in the Roman Isia, and still the 31st of October, as it had always been. And how does he designate and describe it?

Et tum forte hilares per compita rustica pagi

Mulcebant sacris pectora fessa jocis.

Illo quippe die tandem renovatus Osiris

Excitat in fruges germina læta novas P.

According to which Osiris could be nothing but the type of the vegetable kingdom. His annual loss and recovery, his annual death and his coming to life again, were merely the cycle of vegetable decay, and of vegetable reproduction.

This first and most obvious explanation of the fable, we have seen, was recognised by Plutarch, among the testimonies produced *supra*<sup>a</sup>: but apparently only as most fit for the people, only as the most popular, because the most superficial. It was well adapted *ad captum vulgi*, but not sufficiently refined for philosophers. The popular construction of the fable however, it is to be presumed, would be most agreeable to its outward appearance and meaning; and therefore would be the most natural, and most in accordance with its circumstances. And this is what we are properly concerned with; viz. that explanation of the fable which will serve best to account for *all* its circumstances. In the opinion of writers of antiquity, who were quite as much disposed as Plutarch himself to give to these fables the largest, the most profound, and the most philosophical sense of which they were capable, and whose sagacity was equal to his; this popular view of the Egyptian Osiris appeared as agreeable to the truth as any. Neither the Egyptian Osiris, nor the Syrian Adonis, nor the Greek Dionysos, or Kore, seemed to be anything but different expressions of the same idea, the basis of which in all was the same principle of vegetable life; nor the fables connected with each in particular to be any thing but different modes of adumbrating and symbolizing the cycle of vegetable production, vegetable dissolution, and vegetable reproduction, as annually renewed and annually exhibited in a similar manner by nature itself.

But the truth is that, simple and popular as this explanation of the fable at first sight may seem to be, it is in reality something recondite and profound. It involves meanings and mysteries which do not appear on its surface. It is closely connected with the first principles of the conception of Osiris and Isis themselves, and of their relation to each other. Nor is it difficult to shew that, if these two were originally conceived, personified, and proposed as the types of the generative powers of nature in the abstract, the shape which the cog-nate fable must first assume is that in which we find it actually put forth. The first actual exhibition of Osiris in his proper capacity must be as the principle of vegetable life. The first developement or display of his proper energies must be in the cycle of vegetable production.

No one requires to be told that life is life, and death is death, in every form in which it can appear, and in every subject of which it can be predicated: and consequently that there is no difference, except in circumstances, between vegetable life and death and animal life and death. It is evident also that, as types and impersonations of the natural principle of life and production on the most general scale, Osiris and Isis could not be confined to any one kingdom of nature, or restricted to any one subject. They must be equally necessary to all, equally present and equally active in all; and wheresoever there was existence and life in any shape, there must be the cooperation of these two powers, and the living proof and attestation of their joint effect, also.

This must have appeared so clear to the authors of this fable at first, or to those who modified it afterwards, that, as we have already observed, the first actual operation of these two powers in conjunction was supposed by them to take place in the womb of Rhea, and before they were born; and the first fruit of that joint operation to have been the sun, or the impersonated representative of the sun. Whether this circumstance of the fable made a part of it from the first, or whether it was afterwards added to it; the inference from it is the same: That Osiris and Isis being the two great and comprehensive types of universal productiveness, whatsoever in nature besides contributed to the same effects, and consequently shared the same power, must either be identified

with them, or resolved in its origin into one of their energies and effects. And as there was evidently nothing in external nature which appeared to be so much endowed with an independent power of this kind as the sun, nothing which was so important to life and existence in every thing else as the sun; it was by all means necessary that even the sun should be represented as an offspring, a creation, an emanation of Osiris and Isis; the first to which even they in conjunction had given birth; the greatest of all, and the most like to themselves of all.

We are not indeed of opinion ourselves that this particular circumstance did make a part of the fable from the first. We have doubts of the antiquity of the tradition of which this circumstance is one particular; the grounds of which we hope to explain by and by: but we are entirely of opinion that, whether originally a part of the fable or not, such an additional supposition as this would appear so necessary and so indispensable to it, that it would very probably some time or other be engrafted upon it. It would not appear consistent to recognise Osiris and Isis as the two great principles and sources of life in every form and state; and yet to leave the sun, an actual power and principle of the same kind, distinct from and independent of them. It is probable that this was the idea intended to be expressed by the name of Sothis, applied to the dog-star, yet as the type of Isis also: the proper meaning of that word being conception, and the subject of that conception, in this sense, being Isis herself. It is most probable that Isis was so designated from the first as the *mother* of the sun. For this conjunction of Isis and Sothis (that is, Isis and conception,) yet Isis and Sirius, is older than the cow of Hathor or Neith, which brought forth the sun; and older than this circumstance of the later fable, which made the sun, in the person of Horus, the offspring of Osiris and Isis even in the womb of Rhea.

Now, forasmuch as life is the same thing in itself both in the vegetable and in the animal form; if there was any power to which life itself in the abstract was due, this power must be the same both in the vegetable and in the animal world. It must be the same power working in each; only not in the same way. Vegetable life in any of its forms might be one

thing, and animal life another; but the life-giving principle must be the same in both: and if Osiris and Isis were that principle, Osiris and Isis must be equally present and equally effectual in both.

There is however, notwithstanding all this, so much difference between the process of vegetable life in any of its forms and developements, and the similar process of animal, that both could not be combined in one common representation of the economy of each, in the same way at least. It is manifest too that there is not only a difference in the particular process of one of these forms of life and that of the other, but an established order, a relation of *prior* and *posterior*, between them; that vegetable life is independent of animal, but animal is not independent of vegetable; that the former therefore, in the order of developement and order of being, is naturally prior, and the latter is naturally posterior: for no one requires to be told that vegetable life is the great support of animal, and ultimately even the only support; while the material world alone, the earth and its component parts, the elements of air and water, and light and heat, and nothing else, are the proper supports of vegetable.

It is evident then that, vegetable life in the order of developement being thus prior to animal, to represent the connection between them in any manner, which was not founded on this view of them relative to each other, must be contrary to the reason of things; and it would be absurd to suppose that this truth would not appear as plainly to the ancient Egyptians as it does to ourselves; or that they must not have clearly perceived and comprehended from the first, when they were conceiving this fable of Osiris and Isis, that if all life, and in every form and shape, both in the vegetable and in the animal kingdoms of nature, was still the operation and effect of the same life-bestowing principle, whatsoever that might be; the action and energy of this power must begin to be exerted in the vegetable world and must ascend upwards from that to the animal. The impulse which communicated life and being, motion and activity, to every thing in nature, must be propagated upwards, not downwards; from the lower forms and functions of life to the higher; from the inferior and subordinate to the superior and prin-



cipal; from the less perfect to the more perfect; from those which required less of a common impulse and energy to those which required more; from those forms and developments of life which were destined to be ancillary and auxiliary, to those which were intended to be served and assisted by them: in one word, from the vegetable world to the animal. And Osiris and Isis being the two types and impersonations of this life-giving power and principle, on the largest and most comprehensive scale; their energies, actions, and functions, in their proper capacity and in their proper relation to each other, it is easy to see, must have their roots and foundations in the lower kingdoms of nature, but their ramifications and superstructures in the higher. Their first principles, rudiments, and beginnings must be exemplified in the vegetable world, and in the various forms of vegetable life; their completion and perfection in the animal, and in the different productions of animal life.

Now there was one natural instrument in the propagation of animal life, which, being equally necessary and equally subservient to the effect produced in every case, was the most appropriate emblem of the universal principle of animal life which could be selected; and that is the instrument the likeness of which the Greeks expressed by the name of the Phallus. We have seen that the Egyptians associated this symbol with their fable of Osiris and Isis from the first: and yet that they adapted the circumstances of the fable itself in the first instance to the process and economy of vegetable life. The reason of this must now appear. There is an established order between the developement of vegetable and that of animal life; and an established connection too. The former is prior to the latter, and necessary also. The former is propagated universally through the seed, the latter universally through the Phallus. The living energy begins in the former; but it is perfected and consummated only in the latter. Osiris was that energy and that principle in both; but he wrought in one way and by one instrument in the one, and in another way and by a different instrument in the other. They began therefore, as was natural, with a symbolical representation of the action of this power in the vegetable world; but they clearly and intelligibly intimated

its equal and simultaneous relation to the animal also, by combining the Phallus with it.

And having arrived at this conclusion, which every one must allow to be only the legitimate consequence of our premises; we may now see how little reason there is to except to the explanation already given of the outward or sensible circumstances of the *Isia*, from the apparent simplicity of the explanation itself, notwithstanding its obvious agreement to those circumstances. It must now appear that, simple and popular as such an explanation may seem, it is founded on principles and reasonings of the most abstruse and metaphysical kind; pervading the whole of the material, the vegetable, the animal, and we may add even the sidereal, universe. The origin of matter and form; the concatenations, connections, dependencies of life and being, in every form and shape, one with and one upon another; the unity of the life-giving principle itself, amidst all this diversity of subjects and operations in which and by which it acts; these, and various other questions, the most profound and mysterious which could be proposed to the human understanding, are virtually included in it. That the method devised for inculcating these truths was allegorical, and that the allegory was of this simple and obvious kind which appeared to carry its own interpretation along with it, was due to the necessity of the case, if the representation itself, in what manner soever expressed, must follow the order of the things intended to be represented thereby; the economy of life and existence in general, beginning in its simplest, and ending in its most complete and complicated, forms.

It must be admitted however, notwithstanding all this, that the whole of this Egyptian system of ontology, founded as it was, yet when compared with the effects which ultimately resulted from it, is one of the most extraordinary phenomena which the history of mankind brings to light. If we reflect on the consequences which so speedily followed upon the first introduction of the fable of Osiris and Isis into Egypt, in the adoption of the same kind of fable, in so many instances, directly after, elsewhere; in the influence every where exerted by it on the religious belief and

on the moral practice of mankind; in the innumerable phases of a common degradation in the former, and of a common turpitude in the latter, which are to be traced up to it; nothing will seem more surprising than *this fact*: That on so simple a basis as the observation of one of the most common and ordinary of natural phenomena, viz. that a corn of wheat, or a seed of any other description, committed to the ground, will die in appearance, and after remaining a certain length of time in a state of apparent death will revive, and be seen alive again in the shape of the plant; the world should have witnessed the erection of such a structure as that of the polytheism of antiquity, in its utmost extent and comprehension, and in its most complicated form and shape: a system attended with so much licentiousness, so much indecency, so much impurity; a system so disparaging to the understandings, and so demoralizing to the habits of men; a system which not merely permitted, but sanctioned, commanded, and rendered imperative even as acts of duty and as services of religion, the mysteries of Cotytto; the orgies of the Bacchanals; the service of Mylitta at Babylon, of Kybebe in Lydia, of the Paphian Venus in Cyprus; the emasculating rites of Cybele; the obscenities of Hieropolis; the licentiousness practised without control at Byblus, at Aphaca, at Balbec; and all the impurities and all the abominations, which it would be a shame to particularize even by name, with which the only too faithful records of the past have made us acquainted.

The beginning of all this corruption is to be traced to Egypt, and to the impulse derived from the Egyptians to the rest of mankind. The well-spring of this foul sink, which overspread the whole of the ancient world with its loathsome waters, was tapped in Egypt: in that country which modern philosophers, who discard the Bible, would erect into the centre and source of truth and illumination instead of Revelation; and to whose priests and whose pundits, the first authors of all these corruptions, they go with blind and besotted deference, in search of the history and of the chronology which they will not receive from prophets or apostles. It cannot be denied that culture and

refinement owe something to ancient Egypt : but religion and morality are under no obligation to the country which first deified the Phallus itself, and then taught the rest of the world to worship it too. Its learning, its philosophy, its hieroglyphics and mysteries, its arts and its sciences, were but a poor compensation for the permanent injury which its example and influence inflicted on the rest of mankind, by the falsification of all that was rational and true in their faith, and by the corruption of all that was holy and commendable in their practice.

SECTION V.—*On the typical nature of the ceremony of the last day of the Isia ; and on the explanation of its circumstances, as related by Plutarch.*

We have been obliged to enter into the preceding explanations at so much length, in order to shew that the first and most obvious construction of the ceremony of the Isia, which resolves it into an allegorical or symbolical representation of natural production in the sense of vegetable, and consequently supposes Osiris to be recognised therein only as the principle of vegetable life, is not inconsistent with that larger and more comprehensive and, as we believe, true view of his character, whereby, along with his partner Isis, he is to be considered the type of universal productiveness both in the vegetable and in the animal world ; the life-giving principle diffused through all nature, and acting in and upon all nature. We shall now proceed to shew that, though Plutarch himself appeared disposed to dismiss this explanation as not sufficiently profound and philosophical, it is, in reality, implied in his own account of the Isia ; and in particular of the ceremonies of the last day ; had he but understood the true drift and meaning of what he himself has related.

In the first place<sup>r</sup>, when the proper time in the course of the ceremony was now arrived, the end of the third and the beginning of the fourth day, each reckoned according to the primitive rule, i. e. from sunset or evening ; he tells us that the priests, and the chamberlains or keepers of the stole, (the robbers,) of the temples, (*οἱ στολισταί*), whose duty

<sup>r</sup> De Iside et Osiride, **xxxix**. See *supra*, ch. iii. sect. iv. p. 85.



it was to dress the sacred images, or the sacred animals, in their proper attire, went in procession to the sea: where, from the allusion to the sea, we must suppose Plutarch to speak first and properly of what was usually done, in his time, at Alexandria; though at Memphis, at Heliopolis, at Thebes, or at any other place equally remote from the sea, it must have been impossible for any procession to go in one night to the sea. We must presume therefore that from such places they went to the Nile, not to the sea. But this is not a distinction of any importance. It was necessary to go, under all circumstances, where water was to be found. Those who were near the sea repaired to the sea; and those who were too far from the sea repaired to the Nile.

It appears too that they carried with them a "casket or box;" which was called "The sacred casket;" no doubt because of what it contained, and of the use which was made of that, on these occasions; but only on these. There would be much to observe on the use of a *κίστη* or casket like this, in all the mysteries of antiquity of which any account has come down to us: but we reserve such observations for the present. This casket contained only a vessel of gold; which Plutarch calls *κιβώτιον*: and the proper meaning of that term in Greek is bowl or basin in English. Such a vessel was consequently adapted to hold a fluid of any kind; and it does not appear that it was wanted on this occasion for any purpose but that of holding water.

As soon as the procession reached its destination, this vessel was filled with water. And here it is observable that though they are said to have gone on purpose to the sea, where nothing but salt water was to be found, this vessel was not filled with salt water, but with fresh; *ποτίμου ὕδατος*. What was the reason of this? The answer is supplied by what follows.

For first, as soon as this water had been poured into the sacred basin, but not before, the people, or bystanders, (the witnesses and observers of what was going on,) immediately broke out into a cry, "That Osiris was found." This then was the moment of the end of the *mystical search*; and consequently that of the *mystical finding*: the moment precisely when this fresh water was poured into the sacred basin. The

explanation of this is the fact that, as vegetable life is the great pabulum and support of animal, so is water the great pabulum and support of vegetable. No truth in physics is more indisputable than *this*, that water is the principal element both in the formation and in the nourishment and growth of vegetables; that water is to plants what the blood is to animals: in one word, that if any thing in nature more than another is the life of the vegetable world, it is water; but of course not salt water, but fresh.

But though fresh water, not salt, is the proper aliment and support of vegetable life; yet the natural source of fresh water itself is the sea: the natural laboratory of fresh water is the sea. All the supplies of their most necessary aliment which vegetables require are ultimately to be drawn from the sea. The priests of Egypt could not be ignorant of so obvious a truth as this. And therefore those, who were near enough to the sea, on such occasions as these naturally resorted to the sea; which was to go to the fountain head and source of fresh water itself, and on the largest possible scale, at once. For this reason too the vessel made use of on these occasions, but merely to hold this water, appears to have been purposely framed of that kind in shape which the Greeks called *κιβώτιον*, and we call a bowl or basin—that is round, and shelving on all sides towards the bottom; consequently resembling the ocean; a miniature likeness of the ocean, which is a basin of the same shape too, only so much larger. Those who were too far off from the sea were content to repair to the Nile, which nevertheless was a type of the sea too, especially at the time of the inundation; and what is more, of a sea of fresh water, not of salt; and which the Greeks appear to have been early taught by the Egyptians to know by the name of *ὠκεανὸς* itself.

The priests then repaired to the sea or to the Nile, just at the point of time when the mystical search for the lost Osiris was destined to end, and the mystical finding to begin; because it was necessary to go at once, and at such a time as that in particular, to the source and spring of vegetable life in general. And the moment when they took of this water, and put it into the basin, brought with them on purpose and never used except on this occasion, was critically that

which the people had long been taught to consider the moment of the actual discovery of Osiris; and with reason, as it must now appear, if Osiris himself was only the principle of vegetable life, and this water, so poured into the sacred basin, was the principle of vegetable life too: so that Osiris was either the same with this water, as the people appear to have believed; or this water was a type of Osiris; which was most probably the construction put upon it by the priests themselves.

But the most significant part of the ceremony is that which followed, just after this moment of the supposed discovery of Osiris in the shape of this typical water. The next thing done by the priests was to take a portion of soil, which Plutarch designates as *κάρπιμος γῆ*; and to mix some of this water with it: and when they had thus made a clay or paste of it, to mould it into the shape of a miniature image, resembling a lunar crescent—*μηνοειδὲς ἀγαλμάτιον*—which the keepers of the stole (present no doubt from the first, but without taking any part in the ceremony until now) immediately proceeded to recognise and to treat as divine, by trimming or clothing it with the sacred robes appointed for the purpose. We cannot doubt then that this crescent-shaped miniature image, so formed by the priests and of such materials, and so stoled and decked by the robers, so recognised and treated as divine, immediately after the discovery of Osiris in the shape of this typical water, was the very Osiris himself, and not under any type or likeness but in his proper person.

Now every thing in this ceremony being significant, it could not be without reason that Plutarch described and designated the earth of which this image was made as *κάρπιμος γῆ*. Any kind of soil mixed with water will make a paste or clay; out of which a figure of any kind might be moulded: but it is not any kind of earth which is proper for seed, or calculated to raise up the fruits of the ground. The priests wanted soil of this kind; because what they wanted to make out of it was an image or likeness of the fruits of the ground.

Now with respect to these fruits of the ground, and the manner in which they are developed from the seed, and the form in which they first appear; it can scarcely be

unknown to any of our readers that the shape, in which the first shoot of incipient vegetation begins to appear through the substance of the seed, resembles nothing so much as a *small horn*, the cusp of the lunar crescent. And the direction or tendency of this first shoot being invariably upwards, and towards the surface, and the root striking out at the same time in a similar form, but in the contrary direction or downwards; both together constitute almost a perfect lunar crescent, or might easily be conceived to do so. And both these effects being the natural result of the internal action of the juices of the seed, and of the external action of the surrounding earth in which it is embedded, in other words, of *earth* and *water*; there cannot be any reasonable doubt that this first and incipient developement of the future plant, in the sprout and in the root which constitute the whole of the substance of vegetables both under ground and above ground, must have been that which was always intended by the miniature image, made out of mould and water, worked up into the shape of the lunar crescent, and at this critical moment of the ceremony: nor that this miniature lunar crescent was the first living developement of the living Osiris himself.

And thus even Plutarch's own description of the concluding ceremonies of the *Isia*, rightly understood, conducts us in the easiest and most natural manner to the discovery of the meaning of the *Isia* themselves; and in particular to a correct apprehension of the character in which Osiris himself was first and properly represented therein; viz. as the type of the fruits of the ground; as the principle of vegetable life: in which capacity, as we have shewn at large, he must first be exhibited even in his ultimate character of the principle of life in general, or of the principle of animal life in particular.

SECTION VI.—*On the date of the last part of the ceremony of the Isia, and why the mystical finding of Osiris was attached to the fourth day.*

We shall now proceed to shew why this part of the ceremony, the most important and significant of all, which terminated the mystical search, and all the grief and dejection



to which it gave occasion, and ushered in the mystical finding and all the rejoicings with which it was welcomed, was fixed to the end of the third day, and to the beginning of the fourth. The explanation of this fact is found in the nature of the ceremony itself; and in the mystical character of the Osiris, who was both lost before this point of time and found as soon as it arrived; and in a certain peculiarity of the climate and soil of Egypt.

This peculiarity is that, partly from the perpetual warmth of the air in that country; partly from the peculiar properties of the slime or sediment, which the Nile deposits every year on its surface, and on which the natives of Egypt, from time immemorial, have been accustomed to sow their seeds of every kind, without any kind of dressing or preparation besides; and partly from the action of the waters themselves, which are still more or less retained in this matrix provided for the seed; the grains of barley, or of wheat, or leguminous seeds of any kind, committed at the proper season to this sediment deposited by the Nile, would vegetate in three or four days' time; that is, they would appear above ground on the fourth day after they were sown; though elsewhere, and under the most favourable circumstances, they would not do so in less than seven or eight days' time.

This fact is distinctly attested i. By Theophrastus<sup>s</sup>: *Βλάνει δὲ τὰ μὲν θάττον τὰ δὲ βραδύτερον· καὶ κριθὴ μὲν καὶ πρὸς ἐβδομαῖα μάλιστα· προτερεῖ δὲ ἢ κριθὴ μάλλον... ἐνίοτε γὰρ καὶ ἐνιαχοῦ ἐν ἐλάττωσιν ἡμέραις, καθάπερ ἐν Αἰγύπτῳ· τριταῖον γὰρ φασὶ καὶ τεταρταῖον ἀνατέλλειν.* ii. By Plutarch, quoted by Proclus in his Scholia on Hesiod<sup>t</sup>: *Κάλλιον δὲ, φησὶν ὁ Πλούταρχος, μετὰ τὸν σπόρον ὑετὸν συμβῆναι ἢ πρὸ σπόρου. δῆλον δὲ τὰ γὰρ μετὰ πλειάδα σπαρέντα καὶ πρὸ τροπῶν φύεσθαι ἐβδομαῖα, ἐν Αἰγύπτῳ δὲ καὶ τριταῖα. τὸν δὲ μετὰ τροπᾶς ἐν τριπλασίῳ τούτου τοῦ χρόνου. οὕτως τὸ ἐπιγενέσθαι ὑετὸν ἀγαθὸν μάλλον ἢ τὸ προγενέσθαι. οἱ δὲ ἀρχαῖοι καὶ πρωϊότερον ἔσπειρον· καὶ δῆλον ἐκ τῶν Ἑλεουσινῶν τελετῶν.* To these we may add the testimony of Varro and of Pliny: *Erumpit a primo satu hordeum die septimo: legumina in Ægypto tertio die*<sup>u</sup>.

<sup>s</sup> *Historia Plantarum*, viii. cap. i. § 5.

<sup>t</sup> *Ad Opp. et Dies*, 389.

<sup>u</sup> Pliny, *H. N.* xviii. 10. § 2: 56. p. 182. Varro, *De Re Rust.* i. 34. 45:

This natural fact then in the case of Egypt may be taken for granted; viz. that, without the use of artificial means for the purpose, seeds, like the grain of barley in particular, or pulse of any kind, sown in the usual manner on the mud deposited by the Nile, would germinate on the *fourth* day. This fact being known, we require no other explanation of the rule of the Isia, and of the distinction of parts characteristic of it. But this too confirms the conclusion at which we have already arrived; that Osiris, the subject of the representation in each of these parts of the ceremony, was the type of the principle of vegetable life. It would be in our power also both to illustrate and to confirm the rule of the Egyptian Isia in this respect, by that of the Adonia, and by the *Κῆποι Ἀδώνιδος*, prepared for the Adonia every year; were not this properly connected with a distinct calendar, and with a different part of our subject.

SECTION VII.—*On the date of the Isia, Athyr 17; and why it was fixed to that month and to that day of the month.*

We proceed in the last place to consider the reason why the date of the Isia was attached to the third month of the primitive calendar, and to the seventeenth day of that month: whereby we shall also, we trust, demonstrate in the plainest manner the actual date of the institution of the Isia themselves, and of the introduction of the worship of Osiris and Isis along with them; viz. the epoch of the Sothiacal period, B. C. 1350.

In the calendar of Ptolemy, *De Apparentiis Fixarum*, opposite to the 8th of Phaophi, when it comes to the turn of that day, there is an entry of *σπόρου ὥρα*<sup>w</sup>, “sementis tempus, i. e. principium:” “the beginning of seed time.” And as this is a sidereal or astronomical, not a rural, agricultural, or economical, calendar of its kind, and no similar notice occurs

Cf. Columella, ii. viii. § 2. Lydus, *De Mensibus*, iii. 6. p. 30. l. 10. <sup>†</sup> *Ἰσιδι καρποτόκῃ ταχυμήτορι μυριομόρφῃ.* iv. 173. *Ἀδέσποτα*, cclxxi.

This speedy developement of the principle of vegetable life in Egypt is the idea implied in an epigram addressed to Isis in the Greek Anthology: <sup>w</sup> *Uranologium*, 73. D. Cf. Fabricius, *Bibliotheca Græca*, lib. iv. cap. xiv. p. 433. Ptolemy, *Opp.* iii. (Halma). *De Apparentiis*, p. 24.

in it any where else, it follows that this intimation attached to Phaophi 8 in particular is singular; and consequently that there must have been some particular reason for it.

But with respect to this reason, let us first take leave to mention a certain peculiarity of the Attic calendar. There were stated occasions in the Attic year, defined by an ancient rule, on which seed was sown in certain localities in Attica, marked out and prescribed from time immemorial also. It was sown, at such times and on such spots, by a particular order of persons: and these occasions being three in number, and each of them considered as something sacred, the Athenians had three sacred *āporoi* in their year: and that we are told by the ancients themselves. We cannot indeed undertake to specify the days of the month on which each of these sowings took place; for those days have not been handed down in terms: but we can approximate even to those days; and we may still more confidently venture to assign the months of which those days made part, at least from the time of Solon downwards; and that one of these was the stated month of the Eleusinian mysteries, Boëdromion, the other was that of the Thesmophoria, Pyanepsion. One of these *āporoi* themselves was even more sacred than the other two; and this appears to have been celebrated in Boëdromion: and as we believe before the mysteries.

Now the passage last quoted from Plutarch, from the Scholia of Proclus on Hesiod, clearly proves that these occasions were regarded in the light of seed-times; and it must have been on the notoriety of this circumstance that the remark at the end of the passage was founded, viz. that seed-time in the time of the ancients was earlier than in the time of Plutarch or of Proclus; though in reality, and in the natural course of things, it ought to have been later. But the first of the occasions in question falling in Boëdromion, and even before the mysteries, (the date of which was the middle of the month,) yet being of the nature of a seed-time itself, could not fail to suggest this inference.

The Eleusinia then and the Thesmophoria being originally the same with the *Isia*; if the sowing of seed, in any shape whatsoever, from time immemorial was associated with either of those, there can be little doubt it was so, because it was

associated in like manner with the Isia. No explanation therefore can be more probable, than that this entry of *σπόρου ᾠρα*, opposite to Phaophi 8, in the calendar of Ptolemy, was made out of deference to an ancient prescription, and to an ancient observance; which connected that day with the beginning of seed-time in Egypt.

The first question therefore is what day in this calendar was denoted by Phaophi 8? that is, what Julian day? Ptolemy reckons in this calendar throughout by the rule of the Alexandrine; the Julian date of which was always either August 30 or August 29. Phaophi 8 reckoned from August 30 fell on October 6; reckoned from August 29, fell on October 5: so that the stated date of Phaophi 8 too in the Alexandrine calendar must always have been either October 6 or October 5.

This question then having been answered, and this fact ascertained, let us next inquire what was the Julian date of Athyr 17 B. C. 1350. The first of the cyclical Thoth æra cyc. 2657, reckoned from midnight, fell on July 22 at midnight, B. C. 1350; the first of the cyclical Phaophi on August 21 at midnight; the first of the cyclical Athyr on September 20 at midnight; and therefore the 17th of the cyclical Athyr, æra cycl. 2657, fell on October 6 B. C. 1350, and the next year, æra cyc. 2658, on October 5 B. C. 1349. Supposing therefore a fixed Julian calendar, with a cycle of leap-year the same as the Alexandrine of after-time, to have come into being on July 22 B. C. 1350 under the name of Thoth 1; it is manifest that October 6, in the leap-years of such a calendar, and October 5 in the common years, would coincide perpetually with Athyr 17; and Athyr 17 in such a calendar, and Phaophi 8 in the Alexandrine, both in the leap-years of their common cycle and in the common years, would be always the same.

But the question may still be demanded, what was there in this Julian term October 6, and in this year B. C. 1350, to make it particularly remarkable, even though it did coincide with Athyr 17? In answer to this question, we must remind the reader of the fact, already substantiated by copious testimonies from antiquity, that the waters of the Nile having begun to rise at the summer solstice, and having



continued to rise, or continued undiminished, until the autumnal equinox, began to subside at the autumnal equinox; and then went on subsiding, from that time forward in the same degrees and proportion in which they rose. Now the beginning of this subsidence of the waters in Egypt was the signal of seed-time in that country also. The people even now cast their seeds on the surface of the soil as fast as it is laid bare; and even before it is laid bare<sup>x</sup>. We cannot suppose that the ancient Egyptians did not do the same. If so, the autumnal equinox was to them the beginning of seed-time, howsoever long that season itself might afterwards last; the first and the earliest beginning too; before which, in the nature of things, there could be no other: yet for that very reason, as we may add, and from the nature of the case itself, the most proper beginning of all.

It clearly appears that even in Ptolemy's time there was a term recognised in Egypt as the beginning of seed-time, October 6 and October 5: but not the autumnal equinox in his time, which was then falling on September 25 or 26<sup>y</sup>. What however was the state of the case B. C. 1350? It appears from our Tables, both the general and the supplementary, that B. C. 1350, for the meridian of the Tables we have the mean vernal equinox,

					h.	m.	s.
Mean vernal equinox at Jerusalem	..	April 4.	22	21	21.6		
Subtract	.. ..	.. ..	15	44			
Mean vernal equinox at Heliopolis	..	April 4.	22	5	37.6		
Add two quarters	.. ..	182	14	54	25.2		
Mean autumnal equinox	.. ..	Oct. 4.	13	0	2.8		
Equation of the centre	.. ..	+ 1.	7	31	40.2		
True autumnal equinox	.. ..	Oct. 5.	20	31	43.0		

i. e. *Athyr* 17, according to the primitive rule, at 2 h. 31 m. 43 sec.

We possess therefore in this discovery at last all the explanation which we can desire, both why the date of the *Isia* was fixed to the 17th *Athyr*, B. C. 1350, and why the

<sup>x</sup> Prosper Alpinus, *Res Ægypti*, i. i. 6, 7: ii. 8. *De Medicina Ægypti*. i. vii. p. 11. obv.

<sup>y</sup> See supra, Diss. xii. ch. ii. sect. ii. vol. ii. 410. Dates of the *Magna Compositio*.

notice of σπόρου ὥρα in the sense of ἀρχὴ appears opposite to Phaophi 8 in the calendar of Ptolemy, so long after B. C. 1350 itself. The Julian term denoted by each is the same, October 6 or October 5; and October 5–6 B. C. 1350 was the date of the autumnal equinox. And because it was so, it was also the date of the earliest seed-time in Egypt; and because it was both the earliest and the most proper date of seed-time in Egypt, it was on that very account the fittest to be selected as the first and proper date of the Egyptian Isia; a ceremony from its nature, design, and tendency necessarily connected with seed-time; with the first sowing of seed at least, and with the first developement of vegetable life. And on all these accounts, because it was the original date of the Isia, because it was the date of the autumnal equinox at the time of the institution of the Isia, and because it was the stated date of the first and earliest seed-time under all circumstances, and because it was the first stated date even of that kind which had been consecrated and stamped as peculiar in that capacity by its connection with the Isia; it is easy to see it must be considered *sacred*—it must pass ever after and be regarded as the σπόρου ἀρχὴ or σπόρου ὥρα designated and sanctioned by Osiris and Isis themselves. And thus it would be perpetuated under the name of the σπόρου ὥρα to the latest times; and under that name it would get into the calendar of Ptolemy also.

SECTION VIII.—*General conclusion from the above premises, that either B. C. 1350 must have been the date of the Isia, or there can have been no historical date of the Isia at all.*

The conclusion being thus established that the date of the Isia was purposely fixed to the 17th of Athyr because it coincided with the autumnal equinox, and purposely fixed to the autumnal equinox because that was the first, the earliest, and the most proper date of seed-time in Egypt, and purposely fixed to the first and most proper date of seed-time, because, from the nature of the ceremony itself, it could not be attached to any term in the natural year but seed-time, nor to any season of that description but the first, the earliest, the most proper one of the kind; it is decisive of the question whether the date of the Isia was B. C. 1350, or any earlier or

later date: whether the Isia could possibly have been instituted under a concurrence of circumstances such as we have just ascertained, before or after B. C. 1350.

With respect to any later date, we may leave it out of the question. No one will contend for a later date than B. C. 1350; even though such a date were possible: but many perhaps will strenuously contend for an earlier. With respect therefore to this latter supposition; let it only be assumed that at the first institution of the Isia, whensoever that was, Athyr 17 in the equable year, October 6 in the Julian, and the mean or the true autumnal equinox in the natural or tropical must all meet together: and we may without fear appeal to any chronologer, or to any astronomer, to say whether that could be possible, within any length of time which could be assigned before B. C. 1350; in any year, in short, but B. C. 1350 itself? The Julian term indeed, which must concur with the other two, October 6, may be assumed as something invariable: but the other two are both variable quantities. The mean or the true autumnal equinox is a variable term, at least in terms of the Julian calendar; and having once ceased to fall on a given Julian term, like October 6 or 5, it could not begin to fall on it again under the same circumstances as before, until it had fallen on every day in the Julian calendar, distinct from that, and for the same length of time, in its turn. The 17th of any equable month, similarly referred to the Julian calendar, is a variable term also; which, having once ceased to fall on such a Julian term as October 6 under certain circumstances, could not begin to do so again, under the same circumstances, in less than 1460 Julian years. As referred to a natural term, like the mean date of the autumnal equinox, a given equable term could not return to a given natural one, under the same circumstances as before, except in a much longer period of time. The equable cyclical year too is a different thing from the equable Nabonassarian; and the period of restitution of the former, in terms both of the mean Julian and of the mean natural year, is a very different thing from the period of restitution of the latter.

Let it be supposed however that we had nothing to do in this case, except with a fixed form of the equable year, like

the Nabonassarian, and a fixed type of the mean Julian year, and a fixed standard of the mean natural, such as to recede on the mean Julian in question 24 hours in 129 years. Still if the Isia must have been instituted, whether earlier or later, yet *de facto* when the 17th of Athyr was falling on the 6th of October, in the first year of the Alexandrine cycle of leap-year, and both on the autumnal equinox; then, if they were not actually first instituted in B.C. 1350, we may assert, without fear of contradiction, that they could not have been instituted under the same circumstances a moment earlier than  $365.25 \times 129 \times 1460$  years; that is, 68,791,185 years. And even this in reality would be too early a date; below not beyond the truth.

We leave it therefore to the option of our readers, to do one of *three* things: Either to prove that the Isia had nothing to do at their first institution with seed-time, or seed-time with the autumnal equinox, or either with Athyr 17 in the equable, October 6 in the Julian, year; or to accept of the date which we offer them, in which all these conditions meet together, B. C. 1350; or to go back 68,791,185 years at least beyond it, in search of any similar date, and characterised by the same coincidences.

## CHAPTER V.

*On the confirmation of the date of the institution of the Isia, and of the introduction of the worship of Osiris and Isis, at the epoch of the Sothiacal period, by other proofs.*

SECTION I.—*On the fable relating to the institution of the Epagomenæ of the equable Egyptian year; and to the birth of the five gods.*

It seems to be agreed that, among the  $\mu\omega\theta\omicron\iota$  or fables of the Egyptians, none is more ancient than that which professes to give an account of the origin of the five Epagomenæ: which is in fact that of their equable year itself. It is sufficient to shew the supposed antiquity of this fable, to men-



tion another fact, traditionally connected with the origin of these five days also: That Osiris and Isis and Typhon, the three principal agents concerned in the fable of the Isia, and two more of the gods of the Egyptians, (all five, as represented in this tradition, being the children of Kronos and Rhea,) were born on these five days; some one of the five on some one of these days respectively. These five days, at the end of the equable year, were consequently the birth-days of these five gods; and not only so, but, 'according to the fable itself, were first contrived and added to the year to serve this very purpose; that is, that these five gods might be born on these five days.

All this has been handed down from the earliest times in a well known Egyptian fable: and whether learned men in modern times have believed this fable or not, they have taken its antiquity for granted; they have considered it a genuine and authentic relic of Egyptian mythology, received and believed in Egypt from a point of time as far back as the origin of their equable year and the birth of these five gods themselves. But this, it must be evident, was a very gratuitous inference from the mere fact of the existence and belief of such a tradition among the Egyptians themselves at least; and merely because of the antiquity to which it professed to lay claim. Every one must allow it to be possible for such a fable to have been invented long after the introduction of the worship of Osiris and Isis into Egypt. There is nothing in the nature of things to connect the origin of such a fable with the origin of these divinities. All that we could affirm with certainty concerning this connection is That such a fable could not possibly be older than the worship of Osiris and Isis: but no one could venture to affirm that it could not possibly be younger; or that, though such a fable could not be older than Osiris and Isis, Osiris and Isis might not be older than such a fable, and much older too.

If then we can determine a point of time before which this fable itself could not have been invented, and even the very time at which it must have been invented; we shall not indeed determine thereby the point of time when the fable of Osiris and Isis must have been invented also; but we shall

infallibly fix a time when it must already have been in existence: and if the origin of the former fable itself is found to be comparatively late, that will be only consistent with the comparative lateness of the origin of the fable of Osiris and Isis also. But we hope to do more than this, by ascertaining the date of this later fable. We hope, with the blessing of God, by means of this date of the later fable itself, to authenticate and confirm, in a striking and conclusive manner, the date of the earlier fable also, such as we have already assigned it.

The first thing then which we undertake to prove is *this*: That the fable relating to the five Epagomenæ, and to the births of these five Egyptian gods, cannot possibly be older than B. C. 728. We must begin with producing the fable itself, as reported by Diodorus and Plutarch, the only two of the ancients who have left any account of it.

i. Μετὰ δὲ ταῦτα τὸν Κρόνον ἄρξαι, καὶ γήμαντα τὴν ἀδελφὴν Ῥέαν, γεννῆσαι κατὰ μὲν τινὰς τῶν μυθολόγων Ὅσιριν καὶ Ἴσιν, κατὰ δὲ τοὺς πλείστους Δία τε καὶ Ἥραν... ἐκ δὲ τούτων γενέσθαι πέντε θεοὺς, καθ' ἐκάστην τῶν ἐπαγομένων παρ' Αἰγυπτίοις πένθ' ἡμερῶν ἐνὸς γεννηθέντος. ὀνόματα δὲ ὑπάρξαι τοῖς τεκνωθεῖσιν Ὅσιριν καὶ Ἴσιν, ἔτι δὲ Τυφῶνα καὶ Ἀπόλλωνα καὶ Ἀφροδίτην<sup>2</sup>.

ii. Τῆς Ῥέας, φασὶ, κρύφα τῷ Κρόνῳ συγγενομένης, αἰσθόμενον ἐπαράσασθαι τὸν ἥλιον αὐτῇ μήτε μηνὶ μήτε ἐνιαυτῷ τεκεῖν· ἐρῶντα δὲ τὸν Ἑρμῆν τῆς θεοῦ συνελθεῖν, εἶτα παίξαντα πέττια πρὸς τὴν σελήνην καὶ ἀφελόντα τῶν φώτων ἐκάστου τὸ ἐβδομηκοστὸν, ἐκ πάντων ἡμέρας πέντε συνελθεῖν (lege συνάγειν) καὶ ταῖς ἐξήκοντα καὶ τριακοσίαις ἐπάγειν, ὥς νῦν ἐπαγομένας Αἰγύπτιοι καλοῦσι, καὶ τῶν θεῶν γενεθλίους ἄγουσι. τῇ μὲν πρώτῃ τὸν Ὅσιριν γενέσθαι... τῇ δὲ δευτέρᾳ τὸν Ἀρούρηριν, ὃν Ἀπόλλωνα ὃν καὶ πρεσβύτερον Ὄρων ἔνιοι καλοῦσι. τῇ τρίτῃ δὲ Τυφῶνα, μὴ καιρῷ μηδὲ κατὰ χώραν, ἀλλ' ἀναρρήξαντα πληγῇ διὰ τῆς πλευρᾶς ἐξαλέσθαι. τετάρτῃ δὲ τὴν Ἴσιν ἐν πανύγροις γενέσθαι. τῇ δὲ πέμπτῃ Νέφθυν, ἣν καὶ Τελευτήν καὶ Ἀφροδίτην ἔνιοι δὲ καὶ Νίκην ὀνομάζουσι<sup>3</sup>.

The first of these passages supposes the marriage of brothers and sisters to be already allowed and practised in

<sup>2</sup> Diodorus Sic. i. 13. Cf. 25.

<sup>3</sup> Plutarch, De Iside et Osiride, xii. Cf. De Defectu Oraculorum, xxxvi;

also, De Iside et Osiride, xviii. xix. xx. xxi. xxii. xxxviii. xl. l. li. lii. liv. lv. lvi. lxi. lxii. Herodotus, ii. 156.

Egypt, before the birth of Osiris and Isis; and yet, according to Diodorus<sup>b</sup>, marriages of this description were first sanctioned in Egypt, and first authorized, by the union of Osiris and Isis: Νομοθετῆσαι δέ φασι τοὺς Αἰγυπτίους παρὰ τὸ κοινὸν ἔθος τῶν ἀνθρώπων γαμεῖν ἀδελφὰς, διὰ τὸ γεγονὸς ἐν τούτοις τῆς Ἰσιδος ἐπίτευγμα. Diodorus has not only the reason of things and the unalterable laws of propriety, but the universal feeling and practice of mankind, on his side, when he speaks of such incestuous unions as παρὰ τὸ κοινὸν ἔθος: and it would be absurd to suppose that there was never a time when the common sense and instinctive conviction of the Egyptians also did not revolt from them, and did not condemn them, just as much as those of the rest of the world. We have no doubt too that the case was, as he represents it, even among the Egyptians. This abomination was first reconciled to their sense of propriety by the example of Osiris and Isis; and was not older even among them than the origin of this fable: just as in after-times the Greeks who became acquainted with Egypt and connected with Egypt, contrary to the principles and practice, the laws and customs, of their own country, finding such marriages commonly practised in Egypt, made no scruple of forming them themselves: a fact which is notorious of the Ptolemies, the Macedo-Egyptian dynasty in that country, beginning with the second of the line, Philadelphus, (if not with the first,) married to Arsinoë his sister. In like manner, the princes or satraps of Caria, Mausolus and Idrieus, were married to their own sisters. Nowhere however was this custom older than in Egypt; nor anywhere else, distinct from Egypt, allowed and practised, except out of deference to the authority of the Egyptians. Yet even in Egypt there is no proof, nor any reason to believe, that it was older *de facto* than the fable of Osiris and Isis, and the precedent supposed to have been set by the example of Osiris and Isis. We may argue then that to assume such marriages to have been older than the birth of Osiris and Isis, as the first of these passages does, implies that they had so long been the custom before this fable of the Epagomenæ was invented, that neither the au-

<sup>b</sup> i. 27. Cf. Philo-Judæus, ii. 303. tus Empiricus, Pyrrhon. Hypotyp. i. 14.  
12-22. De Specialibus Legibus. Sex- p. 39. § 152.

thors of the fable nor any one else would be conscious of the anachronism which they were thereby falling into ; nor aware of the least impropriety in making Kronos and Rhea brother and sister, yet husband and wife, as much as Osiris and Isis. On the contrary, it must have appeared to them quite matter of course, that the father and mother of Osiris and Isis (i. e. of brother and sister, yet husband and wife also) must be brother and sister and husband and wife too. And yet this will imply that this fable of the Epagomenæ must have been considerably later than that of Osiris and Isis.

Again, we may observe on both these accounts in common, that each supposes Osiris and Isis to have been the children of Kronos: and yet it is agreed upon all hands, and the Egyptians themselves would have been the first to maintain it, that Osiris and Isis were their oldest gods: Kronos, on the other hand, according to their own account of him, was the youngest of their gods. So that this fable has fallen into the absurdity of making the two oldest gods of the Egyptians the son and daughter of the youngest: an absurdity of which no contemporary fable, that is, no fable as old as the introduction of the worship of Osiris and Isis themselves, could ever have been guilty. In the inscription to Isis, at Nysa, in Arabia, she says of herself, Ἐγὼ Ἰσίς εἰμι ... ἡ τοῦ νεωτάτου Κρόνου θεοῦ (lege θεῶν) θυγάτηρ πρεσβυτάτη: and in the inscription to Osiris, at the same place, he says of himself: Πατὴρ μὲν ἐστὶ μοι Κρόνος, νεώτατος θεῶν ἀπάντων ... εἰμὶ δὲ υἱὸς Κρόνου πρεσβύτατος<sup>c</sup>.

The mythological Kronos and Rhea were ancient conceptions of their kind ; but they were not so old as the fable of Osiris and Isis: nor were they first excogitated in Egypt, but in Crete; and as we believe in B. C. 1302. The Egyptians derived their knowledge of them altogether from the Greeks; and among the Greeks these two had long been recognised as the father and mother of the gods and goddesses of their own Olympus, or of the principal among them at least. It would necessarily require time for these conceptions and these associations to pass into Egypt; and, when Kronos and Rhea became known there at last as the father and mother of such a line of gods and goddesses, what

<sup>c</sup> Diodorus, i. 27. Cf. the "Fragmenta Orphica," v. Ὀρκοὶ Ὀρφικοί.



was more natural than that the Egyptians too should make them the father and mother of their Osiris and Isis also, and yet the youngest of their own gods notwithstanding?

To proceed however to some direct observations on the account before us, and more to the point in proof of what we have undertaken to establish.

It appears that Hermes or Thoth won from the moon the 70th part of her lights. Now what can that mean but the 70th part of a lunar year? only as reckoned from the first of the lunar lights as such to the last. It appears that this 70th part of her lights was equivalent to five days. Thoth took this 70th part of her lights, as soon as he had won it, and made five days of it, in the shape of the five Epagomenæ.

The 70th part of the lunar lights being thus equivalent to five days; to what could the sum total of those lights be equal but  $70 \times 5$  or 350 days? No one can say that this is not a just and legitimate consequence of such premises as these, or that it would be possible consistently to draw any other from them. It follows however from this conclusion that, if there is no error in the numbers in Plutarch, the lunar year, in such a calculation as this, must have been reckoned at no more than 350 days.

Learned men consequently (as usual with them in such cases) have suspected the soundness of the text. Scaliger reads the 72d part of the lunar lights in the text of Plutarch instead of the 70th<sup>d</sup>; and Newton adopts this correction<sup>e</sup>. Mr. Ideler, if we are not mistaken, quotes the passage in his *Technical Chronology*, as if it spoke of the 60th, not the 70th, part of the lights in question. Now there is no critical ground for suspecting the reading in Plutarch: and as to any reasons, different from those on which only an editor would be justified in proceeding, they are to be resolved into nothing but ignorance, and that misapprehension of the nature and state of the calendar to which this fable was accommodated, under which the learned have heretofore laboured, and do still labour.

We have already explained that the epoch of the Apis

<sup>d</sup> De Emendatione, iii. 295.    <sup>e</sup> Chronology, ch. i. p. 208, 209. London, 1728.

calendar B. C. 973 was attached to the luna 3<sup>a</sup>: and that between B. C. 973 and B. C. 728 it rose by degrees to the luna 5<sup>a</sup>: but that in B. C. 728 it was arrested, and fixed to the luna 5<sup>a</sup> f. No one therefore can doubt that such a calendar necessarily bore date from one of the lunar  $\phi\omega\tau\alpha$ , that is, from a visible state of the moon; especially after B. C. 728. Reckon on then 350 days from the first calendar date in such a calendar as this, in terms of the true lunar reckoning—that is, from the luna 5<sup>a</sup>; and you come to the last date in the true lunar reckoning, the luna 355<sup>a</sup>, but only to the 351st in the calendar reckoning; four days before the end of the year.

The lunar year in the Apis calendar was always either 354 days or 355 days long: and this latter being its stated length in the intercalary years of the cycle as much as the former in the common years, its ordinary length may be estimated either at 354 or at 355 days, as the nature of the case may require. And as each of its years bore date on the luna 5<sup>a</sup>; it follows that, in every year of the Apis cycle, there were always either 354 or 355 calendar days, but only 350 lunar  $\phi\omega\tau\alpha$ . The last lunar light in such a calendar would properly go out on the 350th calendar day of *one* year, if the first was to be lighted up again, and to reappear, only on the first of the *next*.

It is manifest then that of such a lunar calendar as the Apis only, and of that too only in the state in which it was first placed B. C. 728, could such a supposition as this be possible, viz. that the 70th part of the lunar  $\phi\omega\tau\alpha$  should amount only to five days, and therefore the sum total only to 350; and yet the calendar lunar year should be a perfect one of its kind, and contain the full complement of calendar lunar days, 354 or 355. And this it is evident is the real state of the case, supposed in this fable itself; viz. that the five days in question were won from the *moon*, but were not won from the *calendar*. The lunar year might be said to have been abridged by this artifice of Thoth; but the calendar year could not be said to have been so. It is to be observed that Thoth, who thus gained this advantage on the moon, had much to do with the calendar, but little or nothing with the

moon: the moon, on the contrary, had every thing to do with her own lights, but little or nothing with the calendar. It must have been notorious, when the fable was imagined, that the calendar reckoning of lunar time and the true differed by five days; that the first of the former was the fifth of the latter, and *vice versa*. What was more natural, what was more calculated to explain the phenomenon, (*ad captum vulgi*, at least,) than to give it out, as this fable did, that Thoth, the patron of the calendar, some time or other, and by some artifice or other, had won five days from the moon? had made the calendar five days richer at the expense of the moon? had robbed the lunar year of five of its lights, leaving the calendar year as complete of its kind as ever?

The very conception of this fable therefore implies that, before it could even have been imagined, the epoch of the Apis cycle in terms of the true lunar reckoning must have risen from the luna 3<sup>a</sup> to the luna 5<sup>a</sup>. Therefore we say it could not be older than the date of our 27th period, B. C. 728 æra cyclica 3279, when this phenomenon first began to be matter of fact; but it might be later: for the same thing held good after B. C. 728, without any further change of the same kind. The analysis of the fable consequently has led to the discovery of the earliest date which could possibly be assigned it, but not to the latest. And even that earliest date would still be so much later than the antiquity which learned men hitherto have been disposed to concede to it, that we may very well be taught an useful lesson from this example, never to receive any of these Egyptian fables on credit, nor to trust their own account of themselves as any voucher for their truth. There are times when the most implicit faith is a duty, and the highest act of reason itself. There are subjects on which it is not permitted us even to doubt. But in such cases as these we cannot do better than act on the advice of the old comic poet:

Νῆφε, καὶ μέμνησ' ἀπιστεῖν' ἄρθρα ταῦτα τῶν φρενῶν.

The next thing, which we undertake to prove, or at least to render probable in the highest degree, is that this fable was actually invented in this very year, B. C. 728.

In the first place, this year corresponds to æra cyc. 3279, Nab. 20. It is the first, in which the Nabonassarian type of equable time and the cyclical met together and coincided in a state of absolute agreement, and no longer only of relative; and when the first of Thoth in both, according to the primitive rule, answered alike to February 20 at 18 hours, and according to the Julian to February 21 at midnight. We have seen reason to conclude that the Egyptians were aware of the distinction between these two types of equable time, before B. C. 728: and that they had long been prepared to look forward to this time, as the epoch of their amalgamation; of their coincidence one with the other; and of the disappearance of all that difference which, with a real agreement at bottom perpetually, had existed between them apparently all along.

In the next place this year, æra cyclica 3279, B. C. 728, in the reckoning of the Apis cycle corresponded to cycle x. 21 in the solar, cycle x. 22 in the lunar reckoning from the epoch of Thoth 11 æra cyclica 3034, May 1 B. C. 973; i. e. in the first type of the Apis cycle itself. The first remark which we have to make on this coincidence is that, (as the reader will see at once from the inspection of this type,) at this period of the cycle there were two years, both of them intercalary one after the other; in each of which consequently the stated length of the lunar year of the cycle would appear to be 355 days, though otherwise only 354. These two years were the 20th and 21st, in the solar reckoning of the cycle, the 21st and the 22nd in the lunar; and æra cyc. 3279 B. C. 728 as we have seen was the latter of these in each. The state of the case, with respect both to the true lunar year and to the calendar lunar year and to the relation of one to the other, which is presupposed and recognised in this fable of the origin of the Epagomenæ, as we have shewn, was *this*; that the former contained 350 lunar lights, the latter 355 calendar lunar days. It is clear that such a supposition could have been adapted first and properly only to an intercalary year of the Apis cycle; when the stated length of the calendar year itself was 355 days. Every year in this Apis cycle bore date from the luna 5<sup>a</sup> alike; but every year did not contain 355 days; nor consequently every year 350



lunar lights. In a calendar year of this kind, containing only 354 days, there could be only 349 lunar lights. It was not every year consequently of such a cycle, to which the circumstances of such a fable as this would apply. It was not every year of such a cycle, in which the 70th part of the lunar lights would be critically equal to 5 days. It is manifest then that such a fable must have been first and properly intended of the intercalary years of the cycle: and B. C. 728 æra cyclica 3279, cycle  $x.21 = *22$  was one of these. We contend therefore that, if it was not actually invented in this year, it must have been purposely adapted to it.

Thirdly, we observe that in the 21st solar or 22nd lunar year of the cycle of type i, the epoch was Mecheir 2. To find the Julian date therefore of this year in the present instance, we must find that of Mecheir 2.

*Æra cyc. 3279. Nab. 20. Cycle x. 21 = \*22 B. C. 728.*

Thoth . . 1	Feb. 21	B. C. 728	Chœac 1	May 22
Phaophi 1	Mar. 23	————	Tybi . . 1	June 21
Athyr . . 1	April 22	————	Mecheir 1	July 21

*Mecheir 2 July 22.*

It thus appears that, while the equable date of this year of the cycle was Mecheir 2, the Julian date was July 22. Now this was a remarkable term, and one in which the Egyptians had been particularly interested from as far back as the institution of their Sothiacal period. It was the original date of that period itself, B. C. 1350. It was its stated date in the first year of its proper cycle of leap year, perpetually; its normal date, even in the common years of the cycle, in which its actual date was July 21. It was indissolubly connected with the phenomenon of the Sothiacal rising in Egypt, as its proper calendar date: and, if we are not mistaken, ever since the institution of the Sothiacal period, it had been the proper Julian date of one of the types of the Julian year itself in Egypt, and it was so still.

Now if we reckon on 70 days from Mecheir 2, July 22, in this year, we shall come to Pharmuthi 12, September 30: and if we reckon on five days more we shall come to Pharmuthi 17, October 5: and when we have come to Pharmuthi 17 we have got to the same equable term, at this time,

the 17th of the month, to which the Isia were originally attached B. C. 1350; and when we have come to October 5, we have arrived at the same Julian term, to which the Isia themselves were attached B. C. 1350. And this too must be considered a remarkable coincidence; viz. that at the epoch of period xxvii, just when the Nabonassarian type of equable time and the cyclical were meeting and coinciding in a state of absolute identity, and just when the proper lunar and solar date of the Apis cycle for the time being was falling on the proper epoch of the Sothiacal period; the 17th of the equable month in both types, and the proper Julian date of the Isia, were meeting and coinciding together also; as they had done at first.

The Egyptians, as we have observed, were not ignorant of the difference between the Nabonassarian type of the equable year and the cyclical. They had been in possession of the Julian year itself too long not to have been made aware of that distinction: and they had long seen reason to conclude that, though there was an essential and inherent difference between these two types *de facto*, at first and for a long time after, which rendered them incapable of any thing but a relative or proportional equality to each other; yet the Nabonassarian was tending all this time to a state of absolute equality to the cyclical, to which it must attain at last: and they were prepared to look for this coincidence at or about the time at which it actually took place, æra cyclica 3279 Nab. 20 B. C. 728.

Now we must here remind the reader that the Sothiacal period was instituted in the 23rd year of our xxiind period, B. C. 1350 æra cyclica 2657; and at this time there was five days' difference between these two types; the cyclical first of Thoth falling on July 22 at midnight, the Nabonassarian on July 27 at midnight. So that the proper Nabonassarian term, which answered at this time to the first of the cyclical Thoth, and through that to July 22, was five days lower in the equable style than the first of Thoth: i. e. it was the Nabonassarian Epagomene 1, not the Nabonassarian Thoth 1. There was a corresponding difference between the cyclical term, and the Nabonassarian, which answered one to the other at the same time, and to the common Julian term of

October 6; this cyclical term, in the equable style of that type being Athyr 17, and the corresponding Nabonassarian one, in the equable style of the same, being Athyr 12. It follows that while the proper cyclical date of the Isia, at the time of their institution, was Athyr 17, the proper Nabonassarian one was Athyr 12: but the Julian date answering to both was the same, October 6.

It has been already explained<sup>b</sup> that a Nabonassarian and a Julian term, having once been set together in a certain state of relation to each other, will always retain that relation, not only nominally but really; subject to no variation but one which must be considered merely accidental; viz. that, while the Julian term remains perpetually the same as at first even in terms, the Nabonassarian one must change its name from time to time. The same Nabonassarian term cannot perpetually agree to the same Julian: but some Nabonassarian term always will do, and one under the same circumstances too as another, perpetually. With regard to a cyclical term, and a Julian, it has been shewn<sup>b</sup> that before a certain time, from the nature of things, such an agreement was not possible. A given cyclical term, and a given Julian term, having been once set together under certain circumstances; if the latter remained ever after the same in terms, the former could not do so too: it must drop or descend one term in its own notation perpetually, to preserve the same relation to the original Julian one, and under the same circumstances as at first.

Thus with respect to a Nabonassarian and a Julian term, perpetually compared together; if the 12th of Athyr æra cyc. 2657 in the Nabonassarian style coincided with Oct. 6, B. C. 1350; then 120 years after exactly, æra cyclica 2777 B. C. 1230, Chœac 12, in the Nabonassarian style, would be found corresponding to October 6, just as Athyr 12 did 120 years before. But with respect to the similar comparison of a cyclical and a Julian term; if the cyclical Athyr 17 æra cyclica 2657 was corresponding to the Julian October 6 B. C. 1350; then 120 years after, æra cyc. 2777 B. C. 1230, not the cyclical Chœac 17, but the cyclical Chœac 16, would be found to be corresponding to the Julian October 6. All this

<sup>b</sup> Diss. viii. ch. ii. sect. iii, sqq. vol. i. 635.

will be rendered intelligible by means of the following scheme, which is distributed into periods of 120 years of this kind, from æra cyclica 2657 B. C. 1350, the epoch of the Sothiacal period, down to æra cyclica 3279 B. C. 728.

*Succession of equable cyclical and of equable Nabonassarian time in terms of Julian, from æra cyc. 2657 B. C. 1350 to æra cyc. 3279 B. C. 728, in periods of 120 equable and 120 Julian years: and shewing both the cyclical date and the Nabonassarian date, which answered to the Julian October 6-5, at the beginning of each of these periods.*

Period	B. C.	Æra Cyclica	Cyclical term.	Nabonassarian.	Julian.
i	1350	2657	Athyr . . . 17	Athyr . . . 12	Oct. 6-5
ii	1230	2777	Chœac . . 16	Chœac . . 12	Oct. 6-5
iii	1110	2897	Tybi . . . 15	Tybi . . . 12	Oct. 6-5
iv	990	3017	Mecheir . . 15	Mecheir . . 12	Oct. 6-5
v	870	3137	Phamenoth 14	Phamenoth 12	Oct. 6-5
vi	750	3257	Pharmuthi 13	Pharmuthi 12	Oct. 6-5
	728	3279	Pharmuthi 12	Pharmuthi 12	Sep. 30
			— — 17	— — 17	Oct. 5

It thus appears that, at the end of five of these periods, (=600 mean Julian years,) æra cyc. 3257 B. C. 750, the cyclical term, answering to October 6, was Pharmuthi 13, the Nabonassarian was Pharmuthi 12: and 22 years after, at the epoch of our xxvii period, æra cyc. 3279 B. C. 728, Pharmuthi 12 in both types was answering alike to Sep. 30, and therefore Pharmuthi 17 in both alike to October 5: of which latter coincidence it has been already pointed out that this Julian term, October 5, was the original date of the Isia; so, that, if the Isia had always been celebrated according to the Julian rule, it must have been their date ever after: and that this equable term, Pharmuthi 17, was the same day of the equable month as the original equable date of the Isia itself, Athyr 17.

The principle of the Julian year being familiar to the Egyptians long before B. C. 1350, it never can be objectionable to assume that, though the Isia themselves were a cyclical ceremony, which considerations of religion obliged the



Egyptians to allow to circulate in the natural order of the equable calendar all round the Julian year, they very well knew that no date was so proper for them as that to which they had been first attached, October 6–5; nor any season so suitable to the nature of the ceremony itself as the autumnal equinox, and seed-time in the natural year. Nor yet that, if they thought it necessary to keep a constant account of this primary and original date of the ceremony, Oct. 6–5, in terms of the equable calendar itself, by noticing and marking the days in this latter on which it fell every four years, they were quite able to do so: they did not want the means of doing it. And it seems to us, from the date of the *σπόρου ἥρα* in the *Parapegma* of Ptolemy, so long after, to be clear that they must have done it; and with the utmost possible accuracy too. It appeared also from Geminus<sup>1</sup>, that they had still preserved down to his time the recollection of the fact that the date of the *Isia* had once fallen on the autumnal equinox; and that they expected it would do so again in the course of time. We do not hesitate therefore to assume that as they had one Julian calendar and one Julian reckoning, from B. C. 1350 downwards, attached to the Julian date of the heliacal rising of Sirius, July 22 and 21; so they had another, from the same epoch downwards, attached to the Julian date of the institution of their *Isia*, October 6 and October 5. And in this calendar, (the cycle of leap-year of which was absolutely the same as that of the other,) the five last days, or *Epagomenæ*, in the common years would always bear date from September 30 to October 5, and the six last in the leap-years from September 30 to October 6.

The last year of the scheme which we have proposed, B. C. 728, was the third year of this cycle of leap-year: and therefore the *Epagomenæ* in this year would be five in number, and bear date September 30 to October 5 in the Julian style, Pharmuthi 12 to Pharmuthi 17 in the equable. On this principle, if an equable year of 365 days were conceived to have come into being for the first time at this moment, and to have been attached in the first instance to such a Julian term as this of October 5; it is manifest that

<sup>1</sup> Diss. xii. ch. i. sect. vi. vol. ii. 392.

the Epagomenæ of such a year must be these five days, September 30 to October 5.

Let it therefore be assumed that the fable relating to the origin of the five Epagomenæ, which is virtually the same thing as the origin of the equable year itself, was actually invented at this time ; and that the way, in which these Epagomenæ were obtained, was actually that which the fable supposes, viz. at the expense of the lights of the moon. In the first place it is evident that, to suppose the origination of the equable solar year just at this point of time, is to suppose that there was no such thing as this form of the year previously. But the fable itself presupposes the existence of the lunar year. It recognises therefore the preexistence of the equable lunar calendar, though it ignores *pro tanto* and *pro hac vice* that of the equable solar year. In other words, what it professed to do was to account for the origin of the equable solar year out of the equable lunar ; and not *vice versa*. It had consequently to obtain its equable solar year in some manner or other from the equable lunar. In the next place, the curse, which the sun is said to have pronounced on Rhea, was this: Μήτε μὴνὶ μήτε ἐνιαυτῷ τεκεῖν : and the scheme which Thoth, her lover, had to devise for her relief, was to provide her the means of bringing forth, yet neither *in* the year as such, nor *in* any month of the year. Now the year at this time was the lunar year ; according to the fable at least. The scheme therefore which Thoth devised was to get five days *from* the *lunar* year ; which after being so won from that could not be said to belong to it any longer : and then to institute the *solar* year, a totally different thing from the lunar, and not included in the curse of Sol, because not in existence at that time : and then to place these five days at the *end* of this year, under the name of the Epagomenæ ; of which five days of the equable year, but of which only, it was a notorious fact that, though they made a part of the *year* every where, they made a part of the *months* no where. They might be reckoned to belong to the year, but they could not be reckoned to belong to the months.

Now let us next suppose that these five days, intended to serve as the Epagomenæ of the equable solar year in ques-

tion, were actually these five, from September 30 to October 5, B. C. 728. Still these were to be won from the moon; that is, from the lunar year for the time being: and they were to be won by robbing the moon of the 70th part of her lights. Now the lunar epoch this year, as we have seen, was Mecheir 2: the lunar 5th also. Reckon on then 75 days, (the 5th part of a year of 355 days and five days over,) from Mecheir 2 July 22 B. C. 728, and you come to Pharmuthi 17 October 5. These five days, (which bore date September 30 to October 5,) over and above the 70, were the 70th part of the lunar lights, the 70th part of a year of 350 days, which Thoth thus won from the moon. They extended from the 71st lunar light of the calendar, for the time being, to the 75th; and they were just the 70th part of the sum total of such lights contained in such a calendar also, for the time; viz. 350. And these thus beginning, in their proper style, on September 30, and being equal to five solar days exactly; it is manifest that, as taken forthwith and disposed of by Thoth, in the shape of the Epagomenæ which he wanted for his new solar calendar, they must bear date September 30. His Epagomenæ must bear date September 30, and the first of his Thoth October 5. And thus, it must be admitted, we have at length arrived at a just and complete idea of this fable; and we have given a probable and consistent explanation of all its circumstances: the result of which is to confirm our proposition, that it must have been invented in B. C. 728: it must at least have been critically adapted to B. C. 728: it cannot possibly be older than B. C. 728. We are altogether of opinion that it was actually invented in this very year: and our readers will probably agree with us in thinking so too. It must be admitted also that the fable is an ingenious one; and devised with much skill. But the most important service which it renders to the cause of truth, under this disguise of fiction itself, is by confirming the date of the Isia, Athyr 17, October 6-5—and the connection of that institution with the epoch of the Sothiacal period, B. C. 1350.

SECTION II.—*On some other Egyptian traditions connected with the fable of Osiris and Isis; and their explanation.*

We shall therefore dismiss this fable, as sufficiently explained; and pass to the consideration of some other particulars, connected with the fable of Osiris and Isis and Typhon in general, of which an equally good use may be made, though they have never yet been applied to any such purpose.

i. It appears from Plutarch<sup>k</sup> that Typhon, having conceived his design on the life of Osiris, engaged 72 aiders or abettors of the same attempt, and also a certain queen from Æthiopia, supposed to have been present at the time, whose name, according to Plutarch, was Aso (Ἄσω). What part this Ethiopian queen was intended to take in the conspiracy, or what part she actually did take, does not appear: for, as far as concerns her cooperation or personal agency, she acts in this tragedy the part of a mere κωφὸν πρόσωπον. Plutarch<sup>l</sup> explains this person of the south winds, which blew at a certain season of the year, (as we have shewn,) <sup>m</sup> from the desert of Æthiopia; and were only too much dreaded and detested by the Egyptians for their pestilential influence. There might be some foundation for this explanation in the natural effect of those winds in Egypt on vegetation\*. But we should be entirely of opinion that this Æthiopian queen was associated with Typhon in this, the worst, act of his life, and the most fatal both to Osiris and to Egypt, merely because of the national antipathy of the Egyptians to the Æthiopians; which made them regard the Æthiopians as their natural enemies, and for the same reason as the natural friends and allies of Typhon.

The number therefore of these associates of Typhon, engaged on his side, preparatory to his attempt and before it had yet been made, was 72. Now there are 72 days exactly from Mecheir 1 inclusive æra cyc. 3279, July 21 B. C. 728, to Pharmuthi 12 September 30 inclusive, the same year;

\* This name of Ἄσω, considered as Greek in its origin, would denote the principle of ἄσση, i. e. *sickliness* or *nausea*: and that was notoriously one of the effects of these hot winds from the south.

<sup>k</sup> De Iside et Osiride, xiii. cf. xlv.  
ch. 4. sect. iii. vol. ii. 560.

<sup>l</sup> Ibid. xxxix.

<sup>m</sup> Diss. xiii.



and 72 days from Mecheir 1 exclusive æra. cyc. 3257 B. C. 750, to Pharmuthi 13 inclusive October 6 the same year. We should be entirely of opinion that these 72 confederates of Typhon were made up of these 72 days.

ii. It is observable that in Diodorus'<sup>n</sup> account of this same conspiracy the number of confederates is supposed to be only 26. At least Typhon, having divided the body of Osiris into 26 parts, is there said to have given each of his accomplices one part. This representation is obviously inconsistent with the other: 72 confederates and only 26 are very different estimates of their number, and both could not possibly be true: or (though truth, in a fable like this, were totally out of the question) both these accounts of the same fable could not have proceeded from the same authors. These differences therefore prove very plainly that the utmost liberties were taken with the fable in after-times; and that the priests engrafted any circumstances upon it which they thought proper; and represented it in any manner in which they pleased.

As to these numbers of Diodorus themselves, they are easy to be explained. In such a lunar calendar as the Apis, after this epoch of B. C. 728, the light of the new moon was supposed to be kindled afresh on the 1st indeed of the calendar month, but on the 5th of the lunar. Consequently it was extinguished also on the 26th of the former, and on the 30th of the latter. In such a calendar then, after B. C. 728, the number of light days (lunar *φῶτα* as such) in every month was 26. The death of Osiris must be compassed by Typhon on one of these days. These are his 26 confederates, in this form of the fable, reported by Diodorus.

iii. We are also informed that this death of Osiris, with its attending circumstances, was contrived and effected by Typhon in the 28th year of his *reign* according to some, in the 28th year of his *life* according to others<sup>o</sup>: and these 28 years, it may be inferred both from Plutarch and from Proclus on Hesiod<sup>p</sup>, were reckoned in either case to be 28 years complete. Both Plutarch and Proclus explain this number

<sup>n</sup> i. 21.

<sup>o</sup> Plutarch, De Iside et Osiride, xiii.

xlii. xliii.

<sup>p</sup> Ad Opera et dies, 817. These numbers in connection with the per-

sonal history of Osiris are attested by the monuments and sculptures also, particularly by those at Philæ; as we shall probably see hereafter.

of years by the number of *lights* in the lunar synodic month; that is, days for which it is visible, from the first phasis inclusive to the last inclusive. But this explanation is not admissible. In the Apis calendar, as we have seen, these lights could not be reckoned at more than 26. It would be ridiculous to talk of 28 lights in a calendar month which notoriously bore date on the *luna quinta*. The first phasis could nowhere be reckoned earlier than the *luna secunda*; nor the last later than the *luna 28<sup>a</sup>*: between which the number included is only 26. The Greeks themselves, as we have seen<sup>q</sup>, reckoned the last phasis of the old moon on the *τετράς φθίνοντος* (the 27th), and the first of the new on the *τετράς ἱσταμένου* (the 4th), which made the *interlunium*, or period of the silent moon, as much as five or six days, and allowed only 24 or 25 days to the actual phasis in every month.

It is equally inadmissible to explain these numbers of the lunar periodic month, in opposition to the lunar synodic month: the true length of which was less than 28 days. The real explanation of the numbers is to be found in the interval between the Nabonassarian epoch of the Sothiacal period, Thoth 1 æra cyclica 2685 July 20 B. C. 1322, and the cyclical epoch, Thoth 1 æra cyclica 2657 July 22 B. C. 1350, which is just 28 years both in the equable and in the Julian reckoning. If you reckon five periods of 120 years, or 600 Julian years, from B. C. 1350 æra cyclica 2657, you come to B. C. 750 æra cyclica 3257; and if you do the same from B. C. 1322 æra cyclica 2685, you come to B. C. 722 æra cyclica 3285: and each of these last is just 28 years distant from each of the former.

iv. There is another circumstantial particular of the fable, which Plutarch alludes to more than once; and which is even more significant than any thing which has yet been mentioned. Τὸν δὲ λόγον ὃν θύοντες ἅπαξ ὕν ἐν πανσελήνῳ καὶ ἐσθίουσιν ἐπιλέγουσιν, ὡς ὁ Τυφῶν ὕν διώκων πρὸς τὴν πανσέληνον εὔρε τὴν ξυλίνην σορὸν ἐν ᾗ τὸ σῶμα τοῦ Ὀσίριδος ἔκειτο, καὶ διέρριψεν, οὐ πάντες ἀποδέχονται—Τῆς δ' Ἰσιδος πρὸς τὸν υἱὸν Ὡτρον ἐν Βούτῳ τρεφόμενον πορευθείσης, τὸ δ' ἀγγεῖον ἐκποδῶν ἀποθεμένης, Τυφῶνα κυνηγετοῦντα νύκτωρ πρὸς τὴν σελήνην ἐν-

<sup>q</sup> Supra, Diss. xiii. ch. ii. sect. viii. vol. ii. 501. Note.

<sup>r</sup> De Iside et Osiride, viii.

τυχεῖν αὐτῷ, καὶ τὸ σῶμα γνωρίσαντα διελεῖν εἰς τεσσαρακαίδεκα μέρη καὶ διαρρίψαι<sup>s</sup>. From the first of these statements we learn that one tradition represented Typhon as having fallen in with the body of Osiris by the light of the moon: from the second, that another represented him to have divided it into fourteen parts. These traditions are only different modes of representing the same state of the case; viz. that he compassed the death of Osiris at the full moon, the calendar date of which is always the 15th of the calendar moon, while the number of days from the new moon to the full, in the calendar month, is always fourteen. We shall explain both these traditions if we can shew that the 17th Athyr, the supposed day of the death of Osiris through the contrivance of Typhon, actually coincided with the full of the moon at the date of the institution of the Isia, æra cyclica 2657 B. C. 1350. This is easily done.

This year, in our own lunar calendar, answers to Period ix. cycle xii. 14 when the epoch was April 28 at 18 hours; but the calendar being now a day in excess, the true mean lunar date may be assumed as April 27 at 18 hours. The sixth month, reckoned from this date, falls on September 21 at 18 hours: and the full moon of that month (the lunar 15th) on October 5 at 18 hours; i. e. on the exact date of Athyr 17, æra cyclica 2657, reckoned strictly according to the primitive rule from October 5 at 18 hours to October 6 at 18 hours. This coincidence is sufficient to prove that in this tradition, distorted and disfigured as it is in the form which it finally assumed, a real historical circumstance of the first and original date of the Isia was actually preserved and handed down; viz. that it coincided with the full of the moon. It conspires therefore with all our other tests and criteria of the true date of that institution, October 5–6 B. C. 1350, Athyr 17 æra cyclica 2657. It is as strong an argument of the truth of that date as any which we have yet produced: and it will still more clearly appear to be so, as soon as it is known in what manner this traditional date of the lunar πανσέληνον, at the epoch of the Isia, Athyr 17 æra cyclica 2657, and through what kind of calendar, was actually handed down: concerning which we shall say no more at

present, because we shall have to return to that subject again, on a future occasion\*.

SECTION III.—*On the observance of the 17th of the month by the Isiaci of after-times.*

That the stated date of the Isia was the 17th of their proper month, as we have seen, would always have been known concerning them, even if nothing else had been; and must always have been considered one of the best attested facts in the history of this ancient Egyptian rite.

Now this rule had an obvious tendency to consecrate the 17th of the month, (not only in the proper Isiac month but in every month,) to the service of Isis; to give it a religious character in the estimation of the Isiaci in particular, above every day of the month besides. Such appears to have been the effect which it actually had at last; at least in quarters distinct from Egypt, and among the worshippers of Isis in other countries: viz. that, wheresoever they were, they had come to consider the 17th day of the month (and of course of the equable month) the most appropriate day for the performance of their peculiar services; and consequently that it was their rule and custom, wheresoever they were, to observe this day in particular, and to go through their characteristic ceremonies on it. And as this is a point which is both curious in itself, and, besides the confirmation which it is calculated to supply of our preceding conclusions in general, when it is once understood, (though hitherto unknown and unsuspected,) is likely to be of service to chronology; we cannot do better than illustrate it by one or two examples of the fact, before we make an end of the present chapter.

We meet in antiquity with frequent mention both of the *μηναγυρταί* and of the *μητραγυρταί*: and these are terms which

\* The tradition implies in strictness, that the date of the Isia in this first instance coincided rather with the lunar fourteenth than with the *πανσέληνον*, which is properly always the lunar fifteenth. If we reckon the new moons from April 28 at 18 hours, B. C. 1350, the fourteenth of the moon of September falls on October 5 at 18 hours. We shall see hereafter that, according to the lunar calendar of this time among the Egyptians, the date of the first Isia must have been actually the lunar fourteenth.



denote the same description of persons in general, but not in particular. Every *μητραγυρτής* might be a *μηναγυρτής*, but every *μηναγυρτής* was not a *μητραγυρτής*. Each of them also denotes a class of persons, who, whether among the Greeks or the Romans, did not worship the proper objects of worship among the Greeks or the Romans, but were the votaries of some exotic superstition; persons too who at first were properly neither Greeks nor Romans, but strangers, and (as the Greeks usually called them) *Barbari*: though in the course of time these *μηναγυρταὶ* and *μητραγυρταὶ* might include both Greeks and Romans too. Both went about the cities or the country at stated times in every month, wearing the proper dress of their peculiar service, carrying about with them their proper images and other insignia, and performing in public their characteristic and peculiar ceremonies: and both did this in order to collect alms, contributions, pence, (*stipem*, as the Romans exprest it,) from the superstition and sympathy of those whom they met with in the way. But the *μητραγυρταὶ* did it in the name of the Mater Phrygia. They were the worshippers of the Phrygian Cybele, and most commonly Phrygians themselves. The *μηναγυρταὶ* were monthly collectors of this kind and in the name of some one of the objects of a foreign superstition in general; and there is no doubt that the Egyptian votaries of Isis, out of their own country, came under this description as much as those of any other of the gods or goddesses of the east besides. But their proper name was *Ἰσιακοὶ* or *Παστοφόροι*. What we propose to shew at present is that they had a stated day for going about in this manner; and that it was the 17th of the equable month.

i. In Suetonius' life of Domitian<sup>t</sup> we are told that when the Roman Capitol was besieged, in the civil war between Vitellius and Vespasian, A. D. 69; he had a narrow escape for his life: being within it at the time when it was set on fire by the soldiers of Vitellius and burnt to the ground. Now we learn from Tacitus<sup>u</sup> that Sabinus, Vespasian's brother, took refuge in the Capitol, xv. Kal. Jan. i. e. Dec. 18: and the same day sent for his own children, and for his

<sup>t</sup> i. 4.<sup>u</sup> Historiarum iii. 67—69.

nephew Domitian, to come to him there; only *nocte concubia*<sup>w</sup>, i. e. late at night. The Capitol was stormed the next day by the adverse party, that is, on Dec. 19; and Tacitus' account of the escape of Domitian, amidst the confusion which ensued, is as follows<sup>x</sup>: "Domitianus prima inruptione (Dec. 19) apud ædituum occultatus sollertia liberti lineo amictu turbæ sacræ inmixtus ignoratusque apud Cornelium Primum paternum clientem juxta Velabrum delituit." In commemoration whereof he afterwards erected a chapel to Jupiter *conservator*, on the site of the *æditui contubernium* in question, in the reign of Vespasian, and a temple to Jupiter *Custos*, in his own reign.

No mention is here made of the Isiæci by name: but there is of the *sacricolæ*, or *sacrificuli*, and of their characteristic dress, the *lineus amictus*; and this being the peculiar garb of the Isiæci, it is manifest that these *sacricolæ* also were Isiæci; and consequently that the rites of Isis must have been going on at this very time and on this day. And the date of the capture of the Capitol having been Dec. 19, that of Domitian's concealment in the quarters of the *ædituus* must have been Dec. 19 too; and that of his escape to the Velabrum, in the disguise of the dress of the Isiæci, must have been Dec. 20. Nor did he appear in public again after he reached the Velabrum, until after the death of Vitellius, which happened the next day, (Dec. 21,) "*Præcipiti in occasum die*," late in the day; being then publicly saluted as Cæsar by the victorious soldiers of Antonius Primus, and conducted in state "*in paternos penates*."

Suetonius' account of the same proceedings is this: "*Bel-lo Vitelliano confugit in Capitolium cum patruo Sabino, ac parte præsentium copiarum (Dec. 18.) sed inrumpentibus adversariis et ardente templo (Dec. 19) apud ædituum clam pernoctavit: ac mane (Dec. 20) Isiæci celatus habitu, interque sacrificulos vanæ superstitionis, cum se trans Tiberim ad condiscipuli sui matrem comite uno contulisset, ita latuit ut scrutantibus qui vestigia subsequi erant deprehendi non potuerit*<sup>z</sup>." And, while this account agrees with Tacitus' in

<sup>w</sup> Ibid. 69. cf. 70.

<sup>x</sup> Ibid. 74. cf. Suetonius, Domitianus,

v. 2.

<sup>y</sup> Ibid. 86. 82—86.

<sup>z</sup> Domitianus, i. 4.

other respects, it supplies the omission in his of the name of the Isiaci; and it still more clearly than his defines the day of the escape of Domitian in the dress of one of these Isiaci, as the morning after the capture of the Capitol, Dec. 20.

Now A. D. 69 answered to Nabon. 817; and Thoth 1 Nab. 817 bore date August 6 A. D. 69; consequently Tybi 1 Dec. 4, and Tybi 17 Dec. 20. These rites of the Isiaci then were going on upon Tybi 17; that is, on the 17th of the fifth equable month: which is as complete a proof of the particular rule and custom which we are proposing to illustrate as could possibly be desired.

The next case of the same kind, which we shall mention, cannot be reduced to the same degree of certainty as this; but it will be found to approximate to it. Appian relates <sup>a</sup> that during the proscriptions, B. C. 43, a certain Volusius, included in the number of the proscribed and serving the office of ædile at the time, escaped by assuming the disguise of an Isiacus also: Οὐαλούσιος δὲ ἀγορανομῶν προεγράφη, καὶ φίλον ὀργιαστήν τῆς Ἰσιδος ἔχων ᾗτησε τὴν στολὴν, καὶ τὰς ὀθόνας ἐνέδυν τὰς ποδήρεις καὶ τὴν τοῦ κυνὸς κεφαλὴν ἐπέθετο, καὶ διήλθεν οὕτως ὀργιάζων αὐτῷ σχήματι ἐς Πομπήϊον. It appears from Valerius Maximus <sup>b</sup> that this was a Marcus Volusius, Ædilis Plebis; and no doubt a well known character in after-times: though we are not aware of any thing ourselves which might illustrate his subsequent history; and as he bore the præ-nomen of Marcus, he must have been a different person from L. Volusius (Saturninus), who is mentioned by Columella, and by Pliny, and by Tacitus. “M. Volusius, Ædilis Plebis, proscriptus, adsumpto Isiaci habitu, per itinera viasque publicas stipem petens, quisnam revera esset obcurrentes dignoscere passus non est. eoque fallaciæ genere tectus in M. Bruti castra pervenit. quid illa necessitate miserius, quæ magistratum populi Romani abjecto honoris prætextu alienigenæ religionis obscuratum insignibus per urbem jussit incedere?”

The date of this proscription could not be earlier than the meeting of Antony, Lepidus, and Cæsar Octavianus in the

<sup>a</sup> De Bellis Civ. iv. 47.

<sup>b</sup> vii. 3. 8.

island Bononia near Mutina<sup>c</sup>, when they declared themselves Triumviri Rei P. Const. Caus.: and that was v. Kal. Dec. <sup>d</sup>, Nov. 27 Roman, Nov. 25 Julian, B. C. 43. Nor did it begin on a general scale before the arrival of the Triumvirs at Rome<sup>e</sup>: which (the distance from Mutina to Rome being taken into account) could scarcely be less than *ten* days<sup>f</sup>. They took three days to enter the city; each on a different day<sup>g</sup>. It is true they had selected 12 or 17 names for immediate proscription; which they sent before them<sup>h</sup>: but though Cicero's was one of these<sup>i</sup>, Volusius' was not likely to be so: and the proscription took effect on Cicero himself only vii Idus Decembres<sup>k</sup>, Dec. 7 Roman, Dec. 5 Julian, *ten* days after the compact of the Triumviri. The proscriptions were going on, after this, when Lepidus celebrated his triumph De Hispania<sup>l</sup>; the date of which in the Fasti is Pridie kal. Jan. Dec. 31 Roman U. C. 711, Dec. 29 Julian B. C. 43. Dio mentions the appointment of prætores *suffecti*, *five* days before the end of the year<sup>m</sup>; and the *numenia* of the next year, the kalends of January Roman, U. C. 712<sup>n</sup>; on which a fresh list of proscriptions was issued<sup>o</sup>, though not affecting persons, but property.

We may infer then that the time when they were at their height, and the lives of such persons as Volusius were indiscriminately endangered by them, was critically the middle period between Dec. 5 and 29<sup>p</sup>. Now B. C. 43 answered to Nab. 706; and Thoth 1 Nab. 706 fell on Sept. 3 B. C. 43: consequently Chœac 1 on Dec. 2, and Chœac 17 on Dec. 18 Julian, Dec. 20 Roman. There is no allusion to the Saturnalia in this account of the escape of Volusius: and that too

<sup>c</sup> Cf. Dio, xlvii. 36, 37. 54. 55. Suetonius, Aug. xvii. 4. xvi. 2. Florus, iv. 6. § 3. Appian, B. Civ. iv. 2-5.

<sup>d</sup> Fasti Consulares, apud Sigonium.

<sup>e</sup> Appian, B. C. iv. 5: 6: 7-10.

<sup>f</sup> The battle of Cremona, A. D. 69, was fought October 19 and 20. The news of the treason of Cæcina, the day before, (Oct. 18, Dio, lxx. 10, 11: Tacitus, Histor. iii. 12-14; 15: Josephus, De Bello, iv. xi. 3.) was brought to Rome Pridie Kal. Nov. Ocotber 31: Tacitus, iii. 37: that is, in 13 days. Cremona was 75 miles further from Rome

than Bononia, 50 further than Mutina.

<sup>g</sup> Appian, B. Civ. iv. 7. Dio, xlvii. 1, 2.

<sup>h</sup> Appian, B. Civ. iv. 6. cf. 12.

<sup>i</sup> Ibid. iv. 6: 19, 20. Cf. Dio, xlvii. 8: 11. Velleius Pat. ii. 66.

<sup>k</sup> Tacitus, De Caussis, 17.

<sup>l</sup> Appian, B. Civ. iv. 31: 32-34. Dio, xlvii. 13.

<sup>m</sup> Dio, xlvii. 15.

<sup>n</sup> Ibid. 12. 16.

<sup>o</sup> Ibid. 16.

<sup>p</sup> Cf. Dio, xlvii. 3-15.



may be regarded as a significant circumstance: for the Saturnalia at this time lasted only three days, Dec. 17–19 (Roman) both inclusive: and Dec. 20 was the day after they were over. We consider it extremely probable then that the day of his escape was Dec. 20; and if so, Chœac 17, another stated day with the Isiaci on this occasion, as Tybi 17 was A. D. 69.

If we should be permitted to see the time when it will be necessary to give an account of the Roman calendar itself; we hope to produce fresh proofs of the rule which we have been illustrating in these two instances. But at present we necessarily forbear to enter upon them.

---

## CHAPTER VI.

*On the meaning of the names of Osiris, Isis, and Typhon respectively; and on the king of Egypt who was reigning at the epoch of the Sothiacal period.*

---

### SECTION I.—On the name of Osiris.

IT has been seen from the testimony of Plutarch, that the hieroglyphical symbols of Osiris were an *eye* and a *sceptre*; and sometimes also an *hawk*. The same symbols appear on the monuments, and with the same reference to Osiris. We learn from him also<sup>q</sup> that the word for τὸ πολὺ in Egyptian was *os*, and that for ὀφθαλμὸς (an eye in Greek) was *ιρι*: so that on this principle the Greek name of Ὀσίρις, translated back into its Egyptian elements, was simply Οσιρι, πολυ-ὀφθαλμος: and in this explanation of the meaning of the name Diodorus<sup>r</sup> agreed with Plutarch.

It does not appear from the modern researches into the meaning of the hieroglyphical symbols, or of the hieroglyphical names of things<sup>s</sup>, that Plutarch's interpretation of these two Egyptian terms was mistaken. Besides these, he seems to have recognised Ὀσίρις as possibly the same name with Σείριος, and Σείριος as another name for the sun<sup>t</sup>:

<sup>q</sup> De Iside et Osiride, x. cf. li.

vi. C. B. p. 423.

<sup>r</sup> Supra, ch. iii. § 2, p. 76.

<sup>t</sup> De Iside et Osiride, liii.

<sup>s</sup> See the Chevalier Bunsen, b. i. sect.

though, with singular inattention to the difference of the Greek and the Egyptian languages, he adds, Εἰ καὶ παρ' Αἰγυπτίοις ἡ πρόθεσις τοῦ ἄρθρου τοῦνομα πεποίηκεν ἀμφιγνοεῖσθαι<sup>t</sup>: as if Ὅσιρις, in the sense of ὁ Σεῖριος, were Egyptian in contradistinction to Greek.

A third name of Osiris is mentioned by him, which, as his text stands uncorrected, appears to be Ὅμφις; but which the learned in Egyptian antiquities correct by Τόνομφιν: its meaning in any case being that of "Beneficent" or "Benefactor:" Ὁ γὰρ Ὅσιρις ἀγαθοποιὸς, καὶ τοῦνομα πολλὰ φράζει, οὐχ ἡκιστα δὲ κράτος ἐνεργοῦν καὶ ἀγαθοποιὸν, ὃ λέγουσι. τὸ δ' ἕτερον ὄνομα τοῦ θεοῦ τὸν ὄμφιν (Τόνομφιν) εὐεργέτην ὃ Ἑρμαῖος φησι δηλοῦν ἐρμηνευόμενον<sup>u</sup>. And in this allusion to "the other name, according to Hermæus," he refers to something which he stated in a former chapter<sup>v</sup>, on the authority of this Hermæus: Ἐμφαίνει δὲ τοῦτο καὶ ὁ Ἑρμαῖος ἐν τῇ πρώτῃ περὶ τῶν Αἰγυπτίων. Ὅμβριμον γάρ φησι μεθερμηνευόμενον εἶναι τὸν Ὅσιριν. According to this explanation, the name of Osiris denoted Rainy; or at least was ultimately derivable from the idea of *rain*. And though the Chevalier Bunsen<sup>u</sup> has pronounced this a "mere Greek fable," it approaches in reality nearer to the truth, and to the first and proper conception of the idea of Osiris, than any other of his names which has yet been mentioned. In the ceremony of the εὐρεσις, on the 20th Athyr, the moment of the supposed discovery of the lost Osiris was that when the *fresh water* was poured into the sacred basin. What was that but to recognise Osiris, in some sense or other, as the same with this *fresh water*? And what difference could there be, in such a case as that, between fresh water and rain? What was the Nile itself, at the inundation, but an accumulation of rain? The true principle indeed of this connection of Osiris with the fresh water, used on this occasion, was that of the principle of vegetable life with the element of water in general; and with water itself in the shape of rain. It is far from improbable therefore, that Hermæus had good grounds for this explanation of the

<sup>t</sup> De Iside et Osiride, liii.

<sup>u</sup> Ibid. xli. Cf. the Chevalier Bunsen, b. i. sect. v. C. B. p. 423. note. Iamblichus, De Mysteriis, sect. viii. cap. iii. 159. l. 5-16: Ὁ γὰρ δημιουργ-

γικὸς νοῦς καὶ τῆς ἀληθείας προστάτης καὶ σοφίας . . . ἀγαθοῦ ποιητικὸς ὢν Ὅσιρις κέκληται.

<sup>v</sup> Ibid. xxxvii.

name, and that he was actually informed in Egypt that Osiris denoted "rain."

It thus appears however that no better grammatical explanation of the name of Osiris was known to the ancients than that which resolved it into the Egyptian terms, *os* and *iri*, one of them denoting *much* or *many*, and the other *an eye*; and both together *πολυόφθαλμος* or *many-eyed*: and this etymology, and this meaning of the word, appears to be recognised in one of its parts, if not in both, by the hieroglyphical mode of representing Osiris himself on the sculptures, "an eye," and "a sceptre." Now a sceptre was a very natural and appropriate emblem for a king in general; and an eye a very proper accompaniment of this symbol of royalty in the case of a king, who, besides being supposed to possess universal dominion, was the eye of the universe also, the centre and source of light, present every where, and beholding all things; as well as ruling over and superintending all things; that is, such a king as the sun. According to this explanation therefore of the grammatical meaning of the name of Osiris, as *ὁ πολυόφθαλμος*, or of the hieroglyphical symbols which represented Osiris himself, the eye and the sceptre; it would not appear that Osiris could have been regarded by the Egyptians in any light but that of "the sun," or "the king"—or of both in conjunction; the sun in the sense of "the king:" for which reason too they seem to have associated with these other hieroglyphical symbols of Osiris that of the hawk; the hawk being notoriously the emblem of the sun in Egypt, and probably one of the oldest under which it was ever represented in that country<sup>w</sup>.

It must follow from this state of the case, either that we have not given a right account of the idea conceived by the Egyptians of the character and relation of Osiris at first; or that this explanation of his name, which makes it signify the "Being of many eyes," confirmed though it seems to be both by the etymology of the name itself and by the hierogly-

<sup>w</sup> Cf. Horapollon, i. 6. See also supra Diss. xiii. ch. ii. sect. iv. vol. ii. 485. Æl. De Natura Anim. vii. 9: x. 14: xi. 39: xii. 4. Philo or Porphyry apud Eusebium, Præparatio Evangelica, i. 10. § 52. p. 93: Καὶ Ζωρᾶστρος δὲ ὁ μάγος ἐν

τῇ ἱερᾷ συναγωγῇ τῶν Περσικῶν φησι κατὰ λέξιν. Ὁ δὲ θεός ἐστι κεφαλὴν ἔχων ἱέρακος, κ', τ. λ. τὰ δὲ αὐτὰ καὶ Ὅστανης φησὶ περὶ αὐτοῦ ἐν τῇ γραφομένῃ Ὀκτατεύχῃ.

phical mode of expressing the same thing, does not and cannot represent the true meaning of the name from the first. The first question then which presents itself here is this: Admitting that this grammatical explanation of the *name*, and this hieroglyphical mode of representing the *person*, are critically adapted one to the other, and both amount to the same thing at last; can we suppose either to be older than the other? For if not, and this name so compounded, and these symbols so delineated, were always associated together; then the question is reduced to *this*: What is the real antiquity of the hieroglyphical system itself? And whether that is really as old as the first conception of the character and relation of Osiris, and the first invention of the fable of Osiris and Isis.

The opinion which we feel ourselves bound to express on this question may possibly surprise some of our readers; though they ought not to be unprepared for it, after the facts which have been laid before them. The hieroglyphical system of the Egyptians is so indissolubly connected with the monumental theology, the monumental chronology, and the monumental history of the Egyptians also; that it is impossible that these different systems could ever have existed apart from each other, or any one of them have come into being without the rest. And if the comparative lateness of the monumental theology, the monumental chronology, and the monumental history is capable of being established by clear and irrefragable proofs, that of the hieroglyphical system, associated with them and purposely invented in order to be so, is established also. We shall not enter any further on this particular question here. We will observe only, that by the hieroglyphical system associated with the monuments, the authenticity and antiquity of which must stand or fall with those of the monuments and sculptures, we mean the system of phonetic hieroglyphics; the system, which ever since the time of Dr. Young and of Champollion has exclusively engaged the attention of learned men; and the key to which they profess themselves to have discovered; and the key to which, as we freely admit, we ourselves believe that they have discovered. The antiquity of this system must stand or fall with that of the monuments; and the authority



of this system must stand or fall with that of the monuments. The Egyptians had another system of hieroglyphics, very different from this: and as we believe much more genuine and much more ancient than this. But these are questions which we purposely forbear to enter upon at present.

The conclusion however which the discovery of the real antiquity of the hieroglyphical system of the monuments authorizes us to draw in reference to this particular question of the meaning of the name of Osiris is this: That the hieroglyphical representation of the name of Osiris, and the etymological meaning of the word itself in the Egyptian, may be critically adapted one to the other; but that is no proof that either of these is older than the invention of this hieroglyphical system itself. The idea of Osiris, the existence of Osiris, and the name of Osiris, were much older in Egypt than the date of this system. The question is, What was the meaning of *that* name as applied to *this* idea, at first? And whether there was any thing in the original form of the name, and in the original meaning attached to the name, by virtue of which it was capable of being modified, and of assuming a different form, and of expressing a different meaning; retaining externally its original form notwithstanding.

Now there appears to have been a certain peculiarity in this name, and in the component parts of this name, from the first; which rendered it susceptible of a modification and change of this kind. An element appears to have entered into it, which in the Egyptian language was ambiguous, and liable to a double construction: and this was the second of the two into which we have seen it resolved, *os* and *ꜣꜥ*. The second of these terms in the Egyptian certainly denoted *an eye*; but it also denoted *a son*. In the Chevalier Bunsen's vocabulary of ancient Egyptian terms, recovered partly from the monuments and partly from other sources<sup>x</sup>, the first meaning assigned it is, "to do," or "to make;" the next is "an eye," the third is "a son:" though it appears to us, that, if the proper meaning of the theme itself was to do or to make, the derivative sense of "a son" was more naturally the next in order, than the derivative sense of "an eye."

<sup>x</sup> App. i. p. 465.

But be this as it may; if this term *iri* was one of the elements of the name of Osiris from the first, it is evident it no more carried with it from the first the sense of an eye than that of a son. And yet, even though it had always been intended to carry with it the sense of "a son," from the ambiguity of the term itself, it was always liable to the possible construction of carrying with it the sense of "an eye," instead of that of "a son."

With regard to the other element which enters into the name along with *ιρι*, in the shape of *os*, it is very possible that neither Plutarch, nor any other of the Greeks, from the time of Herodotus downwards, ever heard it pronounced, or read it written, in any other way than that in which they appear always to have pronounced, and always to have written, it themselves: which is in this form of *Ὀσιρις*. And yet there was *one* exception to this rule, in the case even of a Greek like themselves, Hellanicus, a contemporary of Herodotus' in general, though in strictness somewhat older, and one who visited Egypt in person as well as Herodotus, and most probably before he did so\*. Hellanicus in particular both wrote and pronounced this word in a different manner from the rest of the Greeks. Καὶ γὰρ τὸν Ὀσιριν, says Plutarch γ, 'Ελλάνικος Ὑσιριν ἔοικεν ἀκηκοέναι ὑπὸ τῶν ἱερέων λεγόμενον· οὕτω γὰρ ὀνομάζων διατελεῖ τὸν θεόν.

The form of the name then, under which Hellanicus had become acquainted with it in Egypt, was *Ὑσιρις* not *Ὀσιρις*: *Ὑs-ιρις* not *Ὀs-ιρις*, *Hys-iris* not *Os-iris*: and this was no trifling difference. *Ὑs* and *Ὀs*—to a Greek ear and to a Greek apprehension, were very different things both in

\* According to Pamphila, quoted by Aulus Gellius, xv. 23, Hellanicus was 65 at the beginning of the Peloponnesian war, B. C. 431; Herodotus 53, and Thucydides 40. That would make him only 12 years older than Herodotus, and born B. C. 496 or 495. Lucian, (Macrobii, 22. Opp. iii. 224. 92,) makes him live to be 85. In this case he must have died B. C. 411 or 410. Yet there is reason to believe he was living as late as B. C. 404 or 403, and writing too. He was a native of Mitylene: see Suidas, *in nomine*, and in *Ἐπέβαλεν*; who makes him somewhat later than Herodotus. Cf. Porphyry, apud Eusebium, *Præpar. Evang.* x. 3. § 16. p. 459. See also the Scholia on the *Philoctetes* of Sophocles, ad 201, *εὐστομ' ἔχε*. On this question however, we refer our readers to Mr. Clinton's *Fasti Hellenici*.

sound and in meaning: and such as could not easily be confounded.

The Chevalier Bunsen has observed on this fact<sup>z</sup>, "That in conjunction with the hieroglyphics" this form and enunciation of the name gives the only correct derivation of it as "the son of Isis:" from which it appears that he considered the true meaning of this second of its elements, *iri*, to be "son," not "eye:" though he construed the first simply as another form of the Egyptian name of Isis, which is *Hs* or *Hes*<sup>a</sup>. But on this principle the form of the word in Greek ought to have been <sup>z</sup>*Ἡσις* not <sup>z</sup>*Ἰσις*: or rather, since the Greeks invariably made <sup>z</sup>*Ἰσις* out of the Egyptian name of the goddess, <sup>z</sup>*Ἰσις*. We were informed indeed by Porphyr<sup>b</sup>, that among other relations of Osiris to Isis, conceivable in themselves and actually ascribed to him too, this of son was one. And though we do not question the truth of this statement, we know of no actual testimony of antiquity to the relation in question, discoverable at present; and we may confidently venture to say that, if the personal relation of Osiris to Isis was ever actually so represented, it must have been only in later times, and when the truth of their original relation one to the other had long been forgotten, or it had been so long mixed up and confounded with other relations, altogether foreign to the first and original one, as no longer to be distinguishable from them. We may venture to say it was impossible that Osiris and Isis could ever have been regarded at first in the relation of son and mother. It would have been a contradiction in the nature of things so to regard them. They were the types of the two generative powers: the one of the masculine and active, the other of the feminine and passive. They must be associated together in a corresponding manner. They might have a common origin from something else: they might be represented as brother and sister: but they must be associated as husband and wife. It is impossible that they could have been regarded, (at least at first,) as son and mother.

It is a considerable advance however towards the discovery of the true meaning of the name, to have ascertained that one

<sup>z</sup> B. i. sect. vi. C. p. 423.

<sup>a</sup> Ib. p. 418: Egyptian Antiquities

in the British Museum, part i. 31, 32.

<sup>b</sup> Supra, ch. i. sect. i. p. 3.

of the elements, which appears in it even at present, might have had originally the form of *ῥς* : and that the other, which also appears in it, did not necessarily denote “an eye;” but even more properly, (and certainly quite as possibly,) might have denoted *a son*. Let us then attend in the next place to the context of the passage in Plutarch, from which we have learnt the first of these facts. He is explaining an opinion of some, whom he calls οἱ σοφώτεροι τῶν ἱερέων<sup>c</sup>, which represented Osiris as the abstract idea of the aqueous or watery principle without any reference to any particular subject : *ἅπαντα ἡ ὑγροποιὸς ἀρχὴ καὶ δύναμις* : especially as the *αἰτία γενέσεως*, and as the *σπέρματος οὐσία*. Οἴονται δὲ καὶ Ὅμηρον ὥσπερ Θαλῆν μαθόντα παρ’ Αἰγυπτίων ὕδωρ ἀρχὴν ἁπάντων καὶ γενέσειν τίθεσθαι, τὸν γὰρ Ὠκεανὸν Ὅσιριν εἶναι, τὴν δὲ Τῆθυν Ἰσιν ὥς τιθηνουμένην παντὰ καὶ συνεκτρέφουσιν. καὶ γὰρ Ἕλληνες τὴν τοῦ σπέρματος πρόεσιν ἀπουσίαν καλοῦσι καὶ συνουσίαν τὴν μίξιν. καὶ τὸν υἱὸν ἀπὸ τοῦ ὕδατος καὶ τοῦ ὕσαι. καὶ τὸν Διόνυσον ἦν, ὥς κύριον τῆς ὑγρᾶς φύσεως<sup>d</sup>—after which follows the quotation relating to Helanicus and Ὑσιρις.

In these last words Plutarch refers to a well known epithet of Dionysos among the Greeks, *ῥης ἄττης* : which this allusion shews to have commonly carried with it in their apprehension the notion of *rain* or *moisture*, as if it was derived from *ῥω* to rain. But neither of these terms was Greek : nor can either be explained by any Grecian etymon. Both were Phrygian : both came to the Greeks along with the *Sacra Phrygia*, or rites of the Phrygian Attes and Cybele : together with some other words similarly connected with the same rites, and of a like mystical meaning, *εὐοῖ σαβοῖ*, and the like. It is manifest that the second of these terms, *ἄττης*, was the name of the Phrygian Attes himself, the partner of Cybele in these mysteries : and therefore it may appear to have been simply a proper name, even in this compound form of *ῥης ἄττης*—though that is no necessary consequence of its being found applied as a proper name to the Phrygian Attes. Unfortunately little is known at present of the meaning of such terms in the ancient Phrygian language ; with one or two exceptions only. As

<sup>c</sup> Cap. xxxiii.<sup>d</sup> xxiv.



however these Phrygian sacra were derived from the Egyptian Isia, and the Phrygian Attes and Cybele, *mutatis mutandis*, were absolutely the same kind of conceptions, and in the same kind of relation to each other, as the Egyptian Osiris and Isis; we are altogether of opinion that the ὕης ἄττης of these Phrygian sacra were derived from Egyptian also: and that whosoever should rightly explain the ὕης ἄττης of the Phrygians would explain the ὕσις of the Egyptians; and conversely, that the most correct explanation of the Egyptian ὕσις would be the most likely explanation of the Phrygian ὕης ἄττης.

Now it appears from the Egyptian Vocabulary of the Chevalier Bunsen<sup>e</sup>, that the old Egyptian name for an egg, as he writes it, was *suh*; though from the Egyptian antiquities in the British Museum of Mr. Birch<sup>f</sup>, as well as from the Chevalier Bunsen himself<sup>e</sup>, it would seem that the Coptic form of this word is *sōuhe* or *soohe*. In what manner then, we may demand, would either of these words be expressed in the Greek character; especially *suh*? By *σύη* or by *ῥης*? nothing being more common than the inversion or transposition of the elements in such words as these, *ῥης* instead of *σύη*. And if by *ῥης*—what difference would there be between that and *ῥς*? or what difficulty in contracting *ῥης* into *ῥς*.

Let us therefore suppose this Egyptian name for “an egg” compounded with the Egyptian name for “a son.” It is *suh-iri*. Let us suppose it next to assume a Greek form. It becomes *Συή-ις*, *Ῥήσις* or *Ῥσις*, *Σύσις* or *Ῥσις*, at once: and we thus recover both the pronunciation and the orthography of the word, in which and through which it appears to have become known to Hellenicus in Egypt itself.

It follows however from this explanation of the word, that its first and its proper meaning, and in that form in particular, must have been, “the son of the egg:” and we shall confirm this conclusion, and consequently this explanation of the word, if we can make it appear that such was the character *in* which and *under* which Osiris himself was first conceived, even by the inventors of the fable; the

<sup>e</sup> App. i. p. 480: cf. p. 276. (B. i. sect. iv.)

<sup>f</sup> i. p. 23. note 2.

character of "the son of the egg:" that they did not suppose even their Osiris not to have had some proper beginning and some proper parentage; but that they never knew him, nor ever recognised him, at first in any light but that of "the son of the egg."

Now, on the stelé or pillar, which Diodorus supposes to have been extant at Nysa in Arabia, and to have been erected on the tomb of Osiris, there was an inscription in which he was represented as thus speaking of himself: Πατήρ μὲν ἐστὶ μοι Κρόνος, νεώτατος θεῶν ἀπάντων. εἰμὶ δὲ "Οσίρις ὁ βασιλεὺς ..... υἱὸς Κρόνου πρεσβύτατος, καὶ ἔβλαστον ἐκ καλοῦ τε καὶ εὐγενοῦς ὤου. σπέρμα \*συγγενὲς ἐγενήθην ἡμέρας. Here he is clearly set forth as the offspring of an egg: of "some goodly and noble egg." The mixture of Grecian mythology with Egyptian in this inscription, which appears from the allusion to Kronos, detracts something from its authority. But though Kronos himself was an Hellenic conception, this egg from which Osiris sprang was not so, but purely an Egyptian one. And though to represent Osiris as the son of Kronos, and as the son of this egg also, was not consistent, and could be due only to the mixture of Grecian with Egyptian mythology in this instance; yet to represent him as the son of this egg, yet not as the son of Kronos, might be a purely Egyptian, and so far a consistent, account of his origin. And even as the son of Kronos, if Kronos himself was only the Hellenic conception of the abstract idea of time, he might still be represented as the son of the egg, who was himself (and even in that capacity) the son of time; and was so described on the monument, as *the seed of some kindred day*.

But secondly with regard to this idea of the production of all things from an egg, which on that principle was the type of the material universe; it is well known to have been nothing new in ancient times: to have been familiar to the priests and philosophers of antiquity. It is usual indeed to

\* We ought probably to read *συγγενοῦς* here for *συγγενές*. The meaning is not that he was "the kindred seed of day," but "the seed of the kindred day:" the fated day of his birth, when its proper time arrived.

regard this peculiar view of the origin of things as characteristic of the Orphic theology and of the Orphic cosmogony; and under that prejudice to speak of this egg as the Orphic egg. But we discover the traces of this egg, after a time, in parts of the world where the Orphic cosmogony was never heard of; and in *all* parts of the world and at the *most different* points of time: so that the reception of this peculiar notion of the origin of things after a time may be said to have been almost universal; and the universality of its reception is to be accounted for by the universal deference paid, not to the Orphic cosmogony and the Orphic theology, but to the Egyptian. It has been made a subject of dispute among learned men, whether such a person as the Orpheus of antiquity ever existed: and though we cannot ourselves, contrary to the unanimous testimony of the ancients, refuse to believe in his actual existence, yet, for the same reason and out of deference to the testimony of antiquity also, we are bound to believe that both the cosmogony and the theology of Orpheus were originally derived from Egypt, as the ancients assert them to have been<sup>h</sup>: and as we ourselves may probably have occasion to shew that they were, should we ever come to treat of the Thracian calendar, the correction of which we believe to have been the work of Orpheus.

It is no objection then, that this notion of the production of all things out of an egg was characteristic of the Orphic cosmogony; if it was not exclusively so, and if it was not excogitated by Orpheus, but ultimately borrowed even by him from the Egyptians. We have already produced testimony to the fact of this Orphic opinion; and that the Phanes of Orpheus, whom Proclus considered the antitype of the *ἀνρόζων* of Plato, when the fatal day of his birth had arrived issued himself from this Orphic egg<sup>i</sup>. We have produced testimony too, in the well known lines of Aristophanes<sup>k</sup>, that this notion passed to the Greeks. This egg according to the Greeks in the first place was the offspring of Night; the spontaneous production of Night; at least of Night by herself without the intervention of any other

<sup>h</sup> Diodorus Sic. i. 23.

vol. ii. 294 note.

<sup>i</sup> See *supra* diss. xi. ch. i. sect. iv.

<sup>k</sup> Diss. iv. ch. ii. sect. v. vol. i. 165.

concurrent agent; and Love or Desire (the first principle concerned in the production of every thing else) was the offspring of this egg.

It is very observable that the egg, so laid by Night of herself and without the concurrence of any other instrumental agency with her own in its production, is termed by Aristophanes a wind-egg.

Τίτκει πρώτιστον ὑπηνέμιον νύξ ἡ μελανόπτερος ὦόν—

Now there is a singular gloss in Hesychius, on the word Ὅσιρις, from which we learn that wind-eggs in Egypt were reckoned to be such eggs as brought forth Osiris. Ὅσιρις αἱ ἐν Αἰγύπτῳ ὑπηνέμια τίτκουσι τὸν λεγόμενον Ὅσιριν, γυναικες<sup>1</sup>: where, though the text as it stands has γυναικες, there can be little doubt we ought to read ὄρνιθες\*. For who ever heard, even in Egypt, of αἱ τὰ ὑπηνέμια τίτκουσαι γυναικες? but what housewife not only in Egypt, but every where else, did not know of αἱ τὰ ὑπηνέμια τίτκουσαι ὄρνιθες? It is manifest that these wind-eggs were such as female birds of any kind were supposed to bring forth, without the cooperation of the male. They were the production of the female without the male. Such must have been the egg out of which Osiris was produced; and such that egg which Aristophanes supposes to have been laid by Night of herself, out of which Eros or Desire was produced. This coincidence of ideas and representations, in so peculiar a case as this, in our opinion is decisive that, whether the Greeks derived this notion from Orpheus or not, it must have come originally from Egypt: and that in Egypt the association of ideas, which made Osiris the offspring of an egg of this kind, was so general, so common, so familiar to every one's habitual notions, that even the housewives there gave the name of Osiris-eggs to eggs of this description; to eggs which their hens laid answering to the description of wind-eggs. And as an egg of this kind was a type of self-origination, and self-origination was naturally to be supposed one of the characteristics of divinity, this was

\* The entire passage should probably be corrected, Ὅσιρις<sup>1</sup> αἱ ἐν Αἰγύπτῳ ὑπηνέμια τίτκουσαι, τὸν λεγόμενον Ὅσιριν, ὄρνιθες.



probably the reason why an egg, as well as a snake, was one of the accompaniments of the gods in Egypt†.

† Athenagoras (Legatio, cap. xv.) tells us that, in the Cosmogonia of Orpheus, the original state of things was *water*; the first step towards the formation of the world was the deposition of *ὕδωρ* or *mud* from this water; the next, the production of a *dragon*; and presently after of *an egg*, out of which Phanes was ultimately produced: cf. cap. xvi. The dragon in this representation appears to have been meant of time; as taking its rise out of duration, in the sense of eternity. Lydus observes: (De Mensibus, iii. 3. p. 28. l. 4:)  
*“Οθεν καὶ Αἰγύπτιοι καθ’ ἑρὸν λόγον δράκοντα οὐρηβόλον*  
*(with its tail in its mouth) ταῖς πυραμίσιν ἐγγλύφουσιν· ἀβυσσον γὰρ ὑπο-*  
*τίθενται καὶ δράκοντα ἐν αὐτῇ:* (cf. also iii. 50. p. 49. l. 1. and Eusebius Præp. Evang. i. 10. § 51. p. 93.) This abyss, or depth without bottom, was the type of eternity which has no beginning; and the dragon upon it was the symbol of time; as having a beginning, yet out of eternity. For this reason too, i. e. as a type of eternity, the snake, as we have seen, was a stated appendage of the Egyptian gods. The serpent is said to have been first symbolized in this sense by Thoth himself: Eusebius, Præp. Evang. i. 10. § 46. p. 91: and Horapollon, i. 2. represents a serpent with his tail in his mouth, and spotted with scales, (*φολίδες*), as a type of the world (*κόσμος*). In that form however it was most usually proposed as a type of time. Hence Servius ad Æneid. v. 85: *Septem ingens gyros*:—(which he explains of seven years:) *Nam septimus ei annus est finis erroris; et est optimum figmentum. annus enim secundum Ægyptios indicabatur ante inventas litteras picto dracone caudam suam mordente, quia in se recurrit*: cf. Isidore, Orig. v. 36. 41. G.

We may very well therefore conclude that this type of the dragon or serpent, coming out of the mud or abyss of Chaos, having been borrowed by Orpheus from the Egyptians; he borrowed his egg, the next in order of the productions of his Chaos, from the Egyptians too. Of this Orphic egg see also Achilles Tatius, ad Aratum Isagoge, § 4, Uranolog. 127. B. § 6. 130. C.

Porphyry, (apud Euseb. Præp. Evang. iii. 11. § 45, 46. p. 248.) describes a figure, with an egg issuing from its mouth, as typical of the Demiurge whom he calls *Κνήφ*. (Cf. Iamblichus De Mysteriis, sect. viii. ch. iii. p. 159. 5–16.) Pthah himself was represented on the monuments forming an egg on a potter's wheel; (as for example at Philæ;) with the inscription that “Pthah Totomen, the father of beginnings, was setting in motion the egg of the sun and moon:” Birch, Egyptian Ant. part i. p. 14. And there is mention on the Memnonium or Ramesseum of the egg of Re or Ra, Phre or Phra, the sun: Ibid. i. p. 24. cf. Bunsen, B. i. sect. vi. A. p. 384: 387, 388.

Let us here observe that, according to Aristotle, (i. 560. 6. De Animalibus, vi. 2:) wind-eggs were generally believed most liable to be laid in the spring: *Ζεφύρια δὲ καλεῖται τὰ ὑπὸ τινων, ὅτι ὑπὸ τὴν ἑαρινὴν ὥραν φαίνονται δεχόμενα τὰ πνεύματα αἱ ὄρνιθες*. If the Egyptians were consistent with themselves, and with their previous notions concerning

We are told that the first of the human race in the Chinese cosmogony, Pankou, was born of Chaos; and yet was the offspring of an egg<sup>n</sup>. Sir John Chardin informs us<sup>o</sup> that even in his time it was the custom in Persia for people to make presents to one another, on the Nauruz, or new year's day, (i. e. the day of the vernal equinox,) of eggs curiously painted, gilded, and decorated: to remind each other that on that day the world itself had been produced out of an egg. Nor can there be any doubt that this tradition was as old in Persia as the origin of Magianism itself; that is as the time of the earlier Bactrian reformer, the first Zoroaster, B. C. 947. Plutarch tells us<sup>p</sup> that Oromazes, the good principle in that system, created 24 Izeds, of a nature resembling his own, which for security's sake he deposited in an egg: but he had no sooner done so, than the antagonist principle Arimanius created 24 Izeds of an opposite nature; and these, having contrived to bore an hole into this egg, introduced themselves into it along with the 24 good Izeds. And so both became mixed together, and in the course of time both good and evil issued out of this same egg; that is, the present system and constitution of things; of which this mixture of good and evil, and this conflict of opposite principles, seem to be the most distinctive feature. So widely diffused was this notion of the antemundane and cosmogonic egg: in quarters too, where Orpheus and his cosmogony were never heard of, but to which the influence of Egypt extended; and where the doctrines imbibed from Egypt led to precisely the same results.

Lastly, it is a clear and decisive proof, in our opinion, that Osiris must have been known among the Egyptians in particular, even from the first, as *the son of the egg*; that when they adopted the Grecian conception of Kronos, (and as the father of the rest of the gods, and consequently in that relation even to their own Osiris,) the hieroglyphical symbol on

the *natale mundi*, when they invented the fable of the birth of Osiris and Isis from this great cosmogonic egg, they must have supposed that too to have been laid in the spring.

<sup>n</sup> Martinius, *Historia Sinica*, i. p. 13.

<sup>o</sup> Harmer's *Observations*, iii. Obs. ii.

p. 12. (3d ed. 1797.) Cf. also p. 423. note.

<sup>p</sup> De Iside et Osiride, xlvi, xlvii.

which they fixed for Kronos himself, (whose name in their language was *Seb*,) was a *goose*. The fact is well known, that the hieroglyphic of Seb (Kronos, or Saturn) is a goose<sup>q</sup>. And the Chevalier Bunsen mentions<sup>r</sup> a mystical allusion to him on some one of the monuments, which speaks of "the egg of the cackler," that is, of the egg of Seb. What was this egg, we would ask, but the egg which produced Osiris? In any case, in what respect, we demand, could Osiris be the son of the goose, and not the son of an egg? or how could this mystical goose be the father of Osiris but in and through an egg? It is true that Seb, as the father of Osiris, and in and through an egg too, must not of necessity be a goose; unless there was something in the nature of Osiris himself to connect him, even as the offspring of an egg, with a goose rather than with any other bird: on which subject we may perhaps have occasion to say something more elsewhere.

There seems every reason therefore to conclude that this great antemundane egg, which cuts so conspicuous a figure in the cosmogonies of antiquity, was really first laid, and first hatched, in Egypt: but not before the conception of their great national fable of Osiris and Isis. The first chickens produced from this egg were Osiris and Isis, the types of all life and all being, contained in it besides, and produced from it also: every masculine form of the kind being summed up and impersonated in the former, and every female one in the latter. It follows, that the first and the proper name of Osiris among the Egyptians, his patronymic as such, must have been the *son of the egg*: (for this egg itself had no father; the son of that egg could be the son of nothing but that:) in the Egyptian *Su-iri*, in the Greek Σύρις or Ὀσίρις. Nothing would be easier than to turn the latter into Ὀοσίρις. But as to any reason for doing so, we cannot ourselves imagine what probable inducement the Egyptians could have to disturb a name like this, so closely connected with the first principles of their own cosmogony, for their own sakes at least: but for the sake of others, and to prevent mistakes and misconstructions of a peculiar kind, it is conceivable that they might do so, and that they might even think themselves

<sup>q</sup> Egyptian Antiquities, part i. p. 56.<sup>r</sup> B. i. sect. vi. C. p. 423, note.

obliged to do so. As soon as they became better acquainted with the Greeks, and in particular as soon as they came to know any thing of the meaning of words in the Greek language, they would speedily perceive that *ἴς* in Greek meant a swine, an hog, or a sow: and that *Ὑσιρις* to a Greek ear must sound very like the *son of a swine*. What idea could be more horrifying to an Egyptian than that? The greatest, the most perfect, the most holy, the most ancient of their gods, mistaken for the son of the hog! or the sow! the most unclean, the most impure, and the most abominable of animals! We need no other reason than this, why they should make all haste to change the name; to turn *Σύρι* into *Ὅσιρι*, *Ὑσιρις* into *Ὅσιρις*—substitute fresh symbols for Osiris himself—convert the *son of the egg* into the *many-eyed*—and obliterate if possible all traces of his connection with the egg, in the eyes of strangers, and especially of Greeks; as they appear to have done, and very carefully too.

## SECTION II.—On the name of Isis.

There is none of these three Egyptian names, Osiris, Isis, and Typhon, concerning which we are more left to our own conjectures, than about the second—that of Isis. The ancients have handed down nothing which can be considered a satisfactory explanation of this name, at least in its first and proper sense, and strictly in conformity to its literal meaning in Egyptian; though they have left on record *one* explanation of it, which would suit its general sense and meaning sufficiently well. It is scarcely credible that so sensible a writer as Plutarch should have fallen into the mistake of deriving a purely Egyptian word like this from any etymon in the Greek language. Διὸ τὸ μὲν Ἴσιον (ὄνομα) καλοῦσι παρὰ τὸ ἴεσθαι μετ' ἐπιστήμης καὶ φέρεσθαι, κίνησιν οὖσαν ἐμφυχον καὶ φρόνιμον. οὐ γὰρ ἔστι τοῦνομα βαρβαρικόν, ἀλλ' ὥσπερ τοῖς θεοῖς πᾶσιν ἀπὸ δυνεῖν γραμμάτων τοῦ θεατοῦ καὶ τοῦ θέοντος ἔστιν ὄνομα κοινόν, οὕτω τὴν θεὸν ταύτην ἀπὸ τῆς ἐπιστήμης ἅμα καὶ τῆς κινήσεως Ἴσιον μὲν ἡμεῖς Ἴσιον δ' Αἰγύπτιοι καλοῦσι<sup>s</sup>. Nor does it palliate this grammatical absurdity to fall into the equal historical absurdity of making Isis a Grecian goddess, before she was yet an Egyptian one; or a Grecian one as early as an Egyptian.



Under these circumstances, so far as testimony to the meaning of the name, transmitted from antiquity, was concerned, there would seem to be no alternative except to acquiesce in the explanation of it by Diodorus; who told us that Isis in the Egyptian language denoted παλαιὰ or ancient<sup>t</sup>. It cannot be denied that such a name might be generally applicable to such a conception; particularly in the sense of the moon, of the earth, or of the land of Egypt: each of which would naturally be looked upon as the type of eternity itself, as something which had existed for ever, and had been what it still was for ever. The eternity of matter, as the ὕλη of things, was an article of faith with the ancients every where, except where they had been enlightened to the contrary by revelation. Macrobius told us<sup>u</sup> that Isis, in one of her characters, and one of her relations, (and evidently in his opinion the most appropriate of all,) was regarded as the earth, in the sense of the universal parent and nurse, the *alma mater* on the largest possible scale; and that for that reason her statue was covered with paps from top to bottom<sup>w</sup>. For the same reason, her proper hieroglyphical symbol might be that of “a throne;” as we are told it was<sup>x</sup>: for this carries with it not only the idea of royalty, such as might befit the consort of Osiris, and therefore the queen of the universe of which he was the king, but also of fixedness, stability, durability, and therefore of eternity.

Furthermore this supposed conception of Isis as the type of the material universe, as the matrix of form of every kind, and so far of the earth, appears to be implied in a particular circumstance relating to her birth, according to the fable connected with the five Epagomenæ; viz. her being born on the fourth of those days ἐν πανύγροις. Learned men have not scrupled to correct the text of Plutarch, (though without any authority on critical grounds,) by reading ἐν πανηγύρεσιν, in this instance, for ἐν πανύγροις<sup>y</sup>; whereby

<sup>t</sup> i. 11, 12.

<sup>u</sup> Supra, p. 77.

<sup>w</sup> In like manner, and from the same view of her nature and her relation to every thing else, the Diana of the Ephesians was πολύμαστος or *multimamma* also. Scriebat ad Ephesios, says Jerome, Dianam colentes, non hanc venatricem quæ arcum tenet atque succincta est, sed illam multimammiam,

quam Græci πολύμαστον vocant, ut scilicet ex ipsa quoque effigie mentirentur omnium eam bestiarum et viventium esse nutricem. Præfatio ad Ep. ad Ephesios: Opp. iv. pars i. 321, 322.

<sup>x</sup> Egyptian Antiquities, p. i. 31: the Chevalier Bunsen, B. i. sect. v. C. p. 418.

<sup>y</sup> Ibid. sect. vi. C. p. 415. note 302.

instead of mending it they have in reality marred it. They tell us indeed that the fourth Epagomene was an holiday, because Isis was born upon it: just as the third was a bad day (an ἡμέρα ἀποφρὰς) because Typhon was born upon it. And this may be very true. But where were these five Epagomenæ, according to the fable, before these divinities were born upon them? And what made the third day an ἡμέρα ἀποφρὰς and the fourth a πανήγυρις, except that Typhon was born on the one, and Isis was born on the other? How could the fourth day become a πανήγυρις, until Isis was born upon it? And how could she be born in the midst of πανηγύρεις, which were the effect of her own birth itself? This correction would never have been imagined, had the true nature of Isis been properly understood. Ἐν πανύγροισ denotes, *in a state of humidity, in a state of total humidity*. If Isis was the type of the earth; it was the universal belief of the Egyptians that the earth came into existence out of water. If she was the type of the land of Egypt; it was only as annually covered by the Nile, and as annually impregnated and made fertile by the Nile. If she was the abstract conception of life of every kind in its elements or first principles; water is the first principle of vegetable life; vegetable life itself is developed from water: and even animals, as every one knows, are born in a state of humidity too. Regarded in any of these points of view, nothing was more natural than that Isis in particular should be represented as coming from her mother's womb ἐν πανύγροισ—in a state of total humidity.

Still it must be confessed that, with respect to the name of Isis in particular, ancient testimony has left us in the dark: and those who have examined the monumental remains most diligently tell us that very little additional light on this subject is to be obtained from them<sup>z</sup>. Now we should be entirely of opinion that this omission in a great measure was intentional; and that it is even no more than might have been expected. The origin of Osiris having been clearly enough explained, and by means of his name itself; there was very little necessity to explain that of Isis also. She was the sister of Osiris, and born at the same time with Osiris. If

<sup>z</sup> The Chevalier Bunsen, B. i. sect. vi. C. p. 414-422.

he was the *son* of the egg—she must have been the *daughter*; for they both came out of one shell, and both at once.

We are told however that, as the hieroglyphical symbol of Isis was a throne, so the mode of pronouncing this was Has or Hesia: but we are also told that Has or Hesi was very like the word in Egyptian for “a woman.” So that on this principle it is possible that the true meaning of this word Isis originally was neither more nor less than “the woman.” We are of opinion however that its true meaning originally was not “the woman,” but “the wife.” The word for *woman* in many of the oriental languages, and especially in those of greatest antiquity, is also the word for *wife*: and this is notoriously the case in the Hebrew, the oldest language of all. The personal relation of Isis to Osiris from the moment of her birth, and even before her birth, was that of “the wife.” She was the type of the feminine principle in the work of universal productiveness, as he was of the masculine: and as he was “the husband” in the most eminent sense of the term, so was she “the wife.” We should not be surprised if the true prototype of the Isis of the Egyptians, in this her most proper character, turned out to have been the Eve of Scripture; and even her name itself to have been borrowed from the Scriptural name of wife, first bestowed upon Eve: which every one knows is *Asse*, or *Esse* also; very nearly approaching to Hs i. e. Has or Hes in the Egyptian.

### SECTION III.—On the name of Typhon.

With regard to the name of Typhon, the first remark which may be made upon it is that it is not Egyptian. Some authors have attempted to derive it from the Arabic Tafa<sup>n</sup>, denoting an inundation or deluge\*. It is a Greek name; substituted for the Egyptian, whatsoever that was. In the Egyptian fable of Osiris and Isis, there were two

\* We cannot subscribe to this explanation; but it may be mentioned as a singular coincidence that the name of Τυφῶς appears to be applied to the Nile, in the sense of the inundation, in the following passage of Æschylus:

..... ὃν τ' ἐπέρχεται Τυφῶ μένος,  
ὑδαρ τὸ Νείλου νόσοις ἄθικτον.      Supplices, 560.

<sup>a</sup> Egyptian Antiquities, i. 30. cf. 31. Also Bunsen, App. i. p. 464. No. 187 of the Vocabulary.

<sup>b</sup> Daunou, tome v. leç. i. 30.

principles concerned, a good and an evil one; a principle of life and a principle of death: the former represented by Osiris, the latter by Typhon. When the Greeks came to be made aware of the fable and its circumstances, though they did not substitute a Greek name for the Egyptian one of Osiris, they did for that of Typhon: just as they substituted  $\delta\ \kappa\upsilon\omega\nu$  in their own language for the Egyptian name of the dog-star.

The name of Typhon will remind the classical reader of the portentous name of Typhäon, or Typhöeus, which occurs in Hellenic mythology, as that of one of the sons of Gaia and Tartarus; the most formidable which she brought forth, and the great antagonist of the gods and goddesses of the classical Olympus for the mastery of the universe<sup>c</sup>. In Homer this name occurs only in the form of  $\text{Τυφωεύς}$ <sup>d</sup>. In the hymns ascribed to him  $\text{Τυφάων}$  also is found<sup>e</sup>. But  $\text{Τυφῶν}$  occurs in neither, in that form at least: though it is only the contracted form of  $\text{Τυφάων}$ .  $\text{Τυφῶν}$  and  $\text{Τυφῶς}$  both occur in Pindar<sup>g</sup>. There can be little doubt that, could the Hellenic conception of this Typhöeus or Typhaon be traced up to its origin, it would be ultimately resolvable into the Egyptian one of Typhon; the capital enemy of their Osiris, and through him of every thing which was divine and good; only not under the same name. Homer's personal knowledge of Egypt indeed appears to have been confined to what he had *heard* of that country: yet he was four or five hundred years younger than the invention of the fable of Osiris and Typhon: and he might very well have heard of this latter; under such a character too as would answer to that of his own Typhöeus. In the time of Herodotus<sup>h</sup>, and even earlier, in that of Pythagoras<sup>i</sup>, the name of Typhon was already appropriated to the antagonist principle to Osiris; and already applied to it as matter of course.

The proper sense of  $\text{τύφω}$  in Greek is to *smoulder* or *smoke*; to *swell* or *be distended*; to *be puffed up* and *bloated*: and, in a metaphorical sense, with such an affection as pride and self-conceit. It would be difficult to assign a reason why a

<sup>c</sup> Hesiod, Theogonia, 821: cf. 306.

<sup>d</sup> Iliad, B. 782-783.

<sup>e</sup> ii. Ad Apollinem, 306. 352: cf. 367.

<sup>g</sup> Olymp. iv. 11. and the Scholia.

Pythia, i. 31.

<sup>h</sup> ii. 144. 156: cf. iii. 5, where  $\text{Τυφῶς}$  occurs.

<sup>i</sup> Plutarch, De Iside et Osiride, xxx.



name so derived should have been given in the Greek language to this Egyptian idea, unless we took into account the nature of the idea itself, and of what kind of subject that was first and properly intended. The Egyptian Typhon was the life-destroying principle, in opposition to the life-giving one. He was the type of dissolution, destruction, and death, both in the vegetable and in the animal world; but first and originally, in the former, secondarily and in the order of ascent from that, in the latter.

Now it is an universal characteristic of the process of natural decay and dissolution in all subjects, whether vegetable or animal, that they *swell* and are *distended* while that process is going on. Animal substances swell in the course of putrefaction, vegetable substances, i. e. seeds in particular, in the course of vegetation. It is common to both to present the appearance of an increase in size while this process is going on; as if they were acted upon by some secret force within them, which puffed them up and distended them. In our opinion this is the most natural explanation of the name which the Greeks gave to the Egyptian Typhon; as soon as the Egyptian idea attached to that name came to be understood by them. It was the personification of this inward and invisible principle of distention, which accompanies the process both of vegetable and of animal corruption; and is the outward and sensible token of the inward and invisible principle at work within.

But, as we have already observed, this name of Typhon, in that form at least, is purely and exclusively Greek. Plutarch tells us the Egyptians themselves had three names at least for Typhon; each of them different from that: and that these three were Σῆθ, and Βεβαιῶν or Βεβῶν, and Σμύ: Διὸ τὸν Τυφῶνα Σῆθ ἀεὶ Αἰγύπτιοι καλοῦσιν, ὅπερ ἐστὶ καταδυναστεῦον ἢ καταβιαζόμενον<sup>k</sup>—Καὶ τοῦτομα κατηγορεῖ τὸ Σῆθ, ᾧ τὸν Τυφῶνα καλοῦσιν· φράζει μὲν τὸ καταδυναστεῦον καὶ καταβιαζόμενον, φράζει δὲ τὴν πολλάκις ἀναστροφὴν καὶ πάλιν ὑπερπήδησιν. Βεβαιῶνα δέ τινες μὲν ἓνα τῶν τοῦ Τυφῶνος ἐταίρων γεγονέναι λέγουσι, Μανεθῶς δὲ αὐτὸν τὸν Τυφῶνα καὶ Βεβῶνα καλεῖσθαι. σημαίνει δὲ τοῦτομα κάθεξις ἢ κώλυσιν, ὥς τοῖς πράγμασιν ὁδῶ βαδίζουσι, καὶ πρὸς ὃ χρὴ φερομένοις, ἐνισταμένης τῆς τοῦ Τυφῶνος δυνάμεως<sup>l</sup>—

<sup>k</sup> De Iside et Osiride, xli.<sup>l</sup> Ibid. xlix.

Ὁ δὲ Τυφῶν ὥσπερ εἴρηται Σῆθ καὶ Βέβων καὶ Σμὺν ὀνομάζεται, βίαιόν τινα καὶ κωλυτικὴν ἐπίσχεσιν ὑπεναντίωσιν ἢ ἀναστροφὴν ἐμφαίνειν βουλομένων τῶν ὀνομάτων<sup>m</sup>.

It thus appears that he had three names in common use, none of them the same with Τυφῶν; yet each meaning the same thing in general; opposition of some kind, coercion, restraint, tyrannical usage, insulting and domineering treatment, the forcible repression of something, which was desirous of proceeding in one way, by an opposition exerted in the other way. But the most general of these names appears to have been Σῆθ<sup>n</sup>. The monuments have brought another name to light, which represented him as the lord or master, (Bal,) viz. Bar<sup>o</sup>; and a fifth, in the shape of Suteχ, which is explained to mean "the great destroyer<sup>o</sup>."

Now, with regard to the fabulous account of the destruction of Osiris by Typhon, it is said to have been brought about in the following manner<sup>p</sup>. Typhon, having secretly conceived his design of making away with Osiris, prepared a coffin, of the size and shape of Osiris; and this being got ready, in a moment of hilarity, when he and Osiris were making merry together, he proposed to him to get into this coffin, and to lie down in it: which Osiris had no sooner done, than Typhon and his associates clapt on the lid, made it fast with nails, and to make the more sure of their victim filled it with melted lead. Such was the famous *κάθειρξις εἰς τὴν σορὸν*<sup>q</sup>, the beginning of the sorrows of Isis; which makes such a figure in the fable ever after, and was every year commemorated in a particular manner, by the supposed burial of Osiris anew<sup>r</sup>.

Now we must here observe that Osiris is often represented on the monuments (in fact almost invariably) in the shape of a mummy; so much so that his most characteristic name itself was that of Morsembhos; i. e. "enwrapped with bandages<sup>s</sup>." We must also observe that the mummies in Egypt appear to have been purposely so shaped by the swathing and bandaging which they underwent, as to re-

<sup>m</sup> De Iside et Osiride, lxii.

<sup>n</sup> Cf. Epiphanius, Opp. i. 1093. D. Expositio Fidei Catholicæ, xii.

<sup>o</sup> The Chevalier Bunsen, B. i. sect. vi.

C. p. 426, 427.

<sup>p</sup> Plutarch, De Iside et Osiride, xiii.

<sup>q</sup> xxxix: xliv.

<sup>r</sup> xlii.

<sup>s</sup> Birch, Egyptian Antiquities, i.

semble a grain of corn, especially a barley-corn; only very much exaggerated in size and dimensions. We are informed also by Plutarch<sup>t</sup>, that when commemorating the *κάθειρξις εἰς σορὸν* every year, on what he calls the occasion of the *ταφαὶ Ὀσίριδος*, they prepared *λάρνακα μηνοειδῆ*: which he explains by referring it to the moon, and to the appearance presented by the moon at a certain period of the synodic month. But the reader, who recollects what we have already been told of the *ἀγαλμάτιον μηνοειδές* on the day of the *εὔρεσις*, and what we have learnt of the meaning of that; will probably be of our opinion, that this crescent-shaped coffin, annually prepared for the burial of Osiris, was something of the same kind as that crescent-shaped image at the heuresis. A barley-corn is *μηνοειδές τι*. It resembles the lunar crescent; or might easily be conceived to do so. The *σορὸς* of Osiris in which he was supposed to have been buried alive by Typhon, and this crescent-shaped coffin, annually prepared in commemoration of it, we are persuaded were never intended of any thing but such a grain of corn in its natural state; which contains the principle of vegetable life within it, but as yet undeveloped; and not merely so, but apparently confined and imprisoned, and unable as yet to find its way out.

No one requires to be reminded that the tendency of life, under all circumstances and in all forms, is not to lie dormant and inert, but to spring out into motion and activity: not to be confined and concealed from view, but to expand itself and to become visible: and while it is prevented from acting in obedience to this impulse, it appears to be kept back or kept down by some external force, opposed to its natural tendencies. Osiris was this living principle, instinct with this natural impulse: Typhon was the antagonist force, which thwarted and checked this impulse; and would not permit it to have free course. And hence the name given him, denoting *κάθειξις*, *κώλυσις*, *ὑπείαντίωσις*—or something to the same effect: which, on this principle, must be allowed to have been very appropriate to him, and very characteristic of the part and office assigned him.

Again, it is to be observed that tradition among the

<sup>t</sup> De Iside et Osiride, xlii.

Egyptians was said to have handed down a curious circumstance of the personal history of Typhon, viz. that he was *χροῖ πυρρός*<sup>a</sup>: of a red or sandy complexion: and because this was his natural complexion, he was partial to every thing red<sup>b</sup>. Red cows, red men, Hyksos shepherds, and Ethiopians, were great favourites of Typhon, because they resembled him in this respect: and for that reason, in the eyes of the Egyptians, they were types of every thing hateful and abominable. This trait in the personal history of their Typhon the Egyptians have handed down as something well-known: though they do not tell us how it came to be perpetuated among them, nor whether Typhon sat for his picture to the same painter who drew the portrait of queen Nitocris. But though they have told us thus much of the personal appearance of Typhon, they have not told us any thing of the same kind concerning Osiris, or what manner of man he too was: at least not so distinctly as of Typhon. Osiris indeed, according to Plutarch, is said to have been *μελάγχρους*<sup>c</sup>: and certain vegetables, particularly in the state of the seed, do present an appearance like that. But with regard to the true colour and complexion of Osiris, it is not to be collected from this incidental allusion in Plutarch; but from the monuments: and according to these, his proper colour was *green*.

Now Osiris being the principle of vegetable life, (especially as first developed from the seed in the shape of the first living germ or shoot,) of what colour could he be thus represented so properly as *green*? What then was the reason why Typhon was represented as *red*? Our readers will probably smile at the simplicity of the answer to this question; which we believe, nevertheless, to be the true. The natural colour of a grain of wheat or of barley is *red*. This colour resides in the outer integument of the seed, the cuticle or skin: which makes no part of the substance of the seed; which becomes bran when the seed is bruised and ground into flour; which seems to have been intended for no purpose, except to confine the principle of vegetable life perpetually

<sup>a</sup> Plutarch, De Iside et Osiride, xxii. xxxi. xxxiii.

<sup>b</sup> Cf. Herodotus, ii. 38. Plutarch,

De Iside et Osiride, xxxi. Diodorus, i. 88. Plut. De Iside et Osiride, xxxi.

xxx.

<sup>c</sup> Ibid. xxii.



to the seed ; which restrains its expansive tendency while it is entire ; which must be burst through itself, and give way, to allow the first living shoot to appear. This skin was the mystical *σπορὸς* or *λάρναξ*, in which Osiris himself was annually confined : within which he was altogether at the mercy of his enemy Typhon ; from which he could not escape, except by his own death, (his death as the seed,) if he was ever to appear alive as the plant. This skin was the mystical Typhon himself : and it is no wonder his complexion was represented as red ; because such was the colour of this cuticle too.

It appears also that among the animals indigenous to Egypt, both noxious and innoxious, the crocodile and the river-horse<sup>d</sup> of the former description, and the ass<sup>e</sup> of the latter, were sacred to Typhon. Both the crocodile and the river-horse anciently abounded in the Nile : and as the former was notoriously one of the most destructive to animal life, and the latter to vegetable, (especially to the standing crops of corn,) it is not surprising that each of them should have been regarded as of a nature and disposition akin to Typhon's, and as creatures of his in particular. But with regard to so innocent and inoffensive an animal as the ass, why this unenviable distinction of belonging to Typhon, above all the other animals subject to man, was assigned to it, may not at first sight appear. Plutarch seems to attribute it to the colour of the ass<sup>e</sup> ; as being red, and so far resembling Typhon. But red is not the natural colour of the ass any where : or though some asses may be of that colour, it is certain that all are not. It is certain too that horses are as much liable to be of that colour as asses : and yet red horses were not sacred to Typhon, so far as we know, not even in Egypt. There is probably a different reason discoverable for this appropriation of the ass to Typhon, and one much better calculated to explain it. The Greeks termed a windlass an *ὄνος* : and a millstone of greater dimensions than usual an *ὄνος μυλικός*. It has been the lot of the ass every where to perform the most menial drudgery in the service of man ; and to do the work of the meanest and humblest of

<sup>d</sup> De Iside et Osiride, L. xxxii : cf. lxxv. Septem sapientum convivium, v.

<sup>e</sup> De Iside et Osiride, xxx. xxxi.

men themselves. It was its duty to turn these millstones: and by so doing to be instrumental in grinding the grain, and reducing it to flour or powder. Now no one requires to be told that the most effectual mode of destroying the principle of life in the seed is to subject it to this process: to triturate it and grind it to powder. The ass, which was condemned to lend its services to such a purpose as this, though from no fault of its own, might be said to labour perpetually in the service of Typhon; to do his work night and day; and to contribute more to carry his ill will to Osiris into full effect, not merely by killing but by absolutely annihilating the principle of life in the seed, than any animal *in rerum natura* besides. And for this reason it must be peculiarly dear to Typhon—it could not fail to be regarded as his creature above all others.

SECTION IV.—*On the supposed burial-places of Osiris among the Egyptians.*

It appears to have made part of the fable of Osiris, if not from the first, yet certainly in the course of time, that as he was supposed to have been enclosed in a coffin, through the contrivance of Typhon, so he was supposed to have been buried in that state of confinement in this coffin: or according to another account, as his body was torn into fourteen parts and scattered in different directions, so these parts, being collected again distinctly, were buried distinctly; and consequently that Osiris had many burial-places at once in Egypt<sup>f</sup>: among which we are able to specify by name Taphosiris<sup>g</sup>, Busiris<sup>h</sup>, Saïs<sup>i</sup>, Memphis<sup>k</sup>, Philæ<sup>k</sup>, Abydos<sup>l</sup>, and Nysa in Arabia<sup>m</sup>, in particular.

Now, knowing as we now do what was meant by this mystical body of Osiris, and that it was nothing more than the seed, not yet committed to the ground; we consider it a probable explanation of these circumstances of the fable, that the different localities where this body, or those fourteen

<sup>f</sup> Diodorus, i. 27. Plutarch, De Iside et Osiride, xx. xxxv.

<sup>g</sup> Ibid. xxi.

<sup>h</sup> Ibid. xxi. Cf. Herodotus, ii. 61, 59. Stephanus Byz. Βούσιρις. Etymologicum Magnum, Βούσιρις.

<sup>i</sup> Herodotus, ii. 170: cf. 62. Strabo,

xvii. i. 442.

<sup>k</sup> Diodorus, i. 22. Plutarch, De Iside et Osiride, xx.

<sup>l</sup> Plutarch, loc. cit. xx. Strabo, loc. cit. Pliny, H. N. v. 11. p. 343, 344.

<sup>m</sup> Diodorus Sic. i. 27.

parts of this body, were supposed to lie, were the principal granaries of Egypt. And this is a point which we recommend to the curious in Egyptian antiquity; whether the localities specified above, and any others which were supposed to share in the same distinction, were not repositories of this kind—magazines and storehouses; in which the produce of every year's harvest was laid up, both for immediate use and for the supply of seed to sow the ground afresh.

It is very probable however that in the course of time great liberties would be taken with this part of the fable: and that every quarter of Egypt, which could advance any reasonable pretensions to such a claim, would endeavour to vindicate to itself the honour of being the exclusive possessor of the remains of Osiris. The two most remarkable cases of the kind appear to have been those of Abydos and Philæ. We learn from the testimony of Porphyry<sup>n</sup> that, at Abydos in particular, the burial-place of Osiris was a mystery, protected by some peculiar secrecy; that to threaten to reveal, and proclaim to the world, who or what lay concealed there, was the most fearful of all denunciations, and the most alarming even to Isis and to the rest of the Egyptian gods. And something of the kind is implied in Plutarch also<sup>o</sup>, where he speaks of the anxiety manifested by the rich in Egypt to be buried at Abydos; in order that their own burial-place might be screened by the same reserve, and their own remains guarded by the same sanctity, as those of Osiris.

With regard to Philæ, the particular spot where the remains of Osiris were supposed to lie in that quarter, was a rock near the island of Philæ in the Nile, called the Abatos (the *inaccessible*): and it would seem both from Plutarch<sup>o</sup>, and from Diodorus<sup>p</sup>, that this also was protected from scrutiny and profanation by the same kind of superstitious fear and reverence. Servius has quoted the following account from Seneca<sup>q</sup>: “Seneca scripsit de ritu et de sacris Ægypti-

<sup>n</sup> Epistola ad Anebonem apud Iamblichum De Mysteriis, Opuscula Mythologica: cf. Iamblichus, sect. vi. cap. v. Diodor. Sic. i. 22. Tzetzes, ad Lycophronem, 212.

<sup>o</sup> De Iside et Osiride, xx. Cf. Ser-

vius ad Æneid. vi. 154 (329).

<sup>p</sup> i. 22.

<sup>q</sup> Ad Æneid. vi. 154. Cf. Seneca Nat. Quest. iv. cap. ii. 3. 7. Opp. v. Lucan. Phars. x. 323. Pliny, H. N. v. 11. 340. Strabo, xvii. i.

orum. hic dicit, circa Sienen extremam Ægypti partem esse locum quem Philas, hoc est Amicas, vocant, ideo quod illic est placata ab Ægyptiis Isis quibus irascebatur quod membra mariti Osiridis non inveniebat, quem frater Typhon occiderat. quæ inventa postea cum sepelire vellet elegit vicinæ paludis tutissimum locum ... limosa enim est, et papyris referta ... ultra hanc est brevis insula inaccessa hominibus<sup>q</sup>, unde ἄβατος adpellata est," &c.

In the monuments of Egypt and Nubia, published at Paris by the French government in 1835, there is a representation which comes from this locality of ancient Philæ, and from the chamber of Osiris there<sup>r</sup>: in which Osiris himself is exhibited as a mummy, and laid out on a bier, round which are growing 28 stems of the lotus, on which Isis pours water from a phial. These are no doubt the 28 years of the reign or of the life of Osiris<sup>s</sup>: from which we may infer that this representation could not have been earlier than B.C. 728, if so early as that date itself.

SECTION V.—*On the king who was reigning in Egypt at the epoch of the Sothiacal period.*

Did we possess an authentic history of Egypt, which went sufficiently far back, then knowing, as we now do, the true date of the Sothiacal period, we should have little difficulty in answering this question, What king was reigning in Egypt at the epoch of that period?

We can answer the question, What king was reigning at the epoch of the Apis cycle? and answer it with certainty; because we know from the infallible testimony of Scripture that Shishak was reigning in Egypt at that time. We could answer the question, what judge was judging Israel, or what servitude was going on in the Holy Land, B. C. 1350? from the testimony of Scripture also. But we know nothing from Scripture concerning the state of Egypt at this time, or what was going on there in particular. B. C. 1350 was 210 years later than the Exodus: and 336 years before the beginning of the reign of Solomon: and Scripture ceases to say any

<sup>q</sup> De Iside et Osiride, xx. Cf. Servius son, 2nd Series, i. xii. 189.  
ad Æneid. vi. 154 (329). <sup>s</sup> See supra, p. 157.

<sup>r</sup> Tome i. Pl. xc. Cf. Sir G. Wilkin-



thing of Egypt after the Exodus, until the end of the reign of David, or the beginning of the reign of Solomon.

With regard to Egyptian history and to Egyptian chronology, such as is known only from the dynasties of Manetho, from the list of kings attributed to Eratosthenes, and from the monuments and papyri; it would be difficult to say from what point of time such an history or such a chronology becomes entitled in any sense to the name of authentic. Certainly not before the time of Shishak, downwards. In the whole series of reigns and dynasties from Shishak upwards, there is scarcely a name, which does not recognise Osiris, or Isis, or Thoth, or Amoun, or Phthas, or some other of the objects of the national worship, much younger than the dates of these reigns and these dynasties themselves; which to our apprehension presents an insuperable objection to the truth of these accounts. And we recommend it to the modern admirers of this Egyptian system, and to the implicit believers in its authenticity, to reconcile these facts together, if they can; that this history and this chronology should go almost immeasurably back beyond B.C. 973, the earliest date of the introduction of the Apis into Egypt, and beyond B.C. 1350, the earliest date of the introduction of the worship of Osiris and Isis, and yet recognise both, as indefinitely older than themselves; especially the latter.

That the truth of their own ancient history must have been well known to the Egyptian priests, we have seen every reason to believe; and from nothing more so than the proofs which have come to our knowledge, and which we hope in due time to lay before our readers, of the accurate chronology, even of the world itself, and from the beginning of things, which was preserved among them. But they kept the knowledge of this history to themselves, especially from the time when they invented the monstrous fiction of the monumental dynasties, which has imposed so long on the credulity of the learned: and having once begun to act on this principle of keeping their real history and chronology out of sight, and of substituting a *falsified and fictitious* system of both in their stead, they were little solicitous what accounts they gave of either to the strangers who visited them, and whether these were consistent with the

truth, or even with each other, or not. This is the only rational and consistent explanation of the very different representations of Egyptian history, down to a certain time, which are still found upon record; though given by those, each of whom professed to have visited Egypt in person, and to have made his inquiries and to have collected his accounts on the spot.

It was very possible however that in spite of all the precautions of the priests, and of all the art and ingenuity which they might exert to suppress or to pervert the truth; some things might come to the knowledge of the most curious and inquisitive of the strangers who visited them, (especially the first of that number,) calculated to throw light on the real history and antiquities of Egypt: and something of this kind, if we are not mistaken, appears to have actually come to the knowledge of Herodotus; which may assist us to answer the question, what king was reigning in Egypt, at the epoch of the Sothiacal period?

Among those stupendous productions of Egypt which have astonished the world in all ages by their grandeur, their solidity, and their durability, it would be difficult to mention any which were really useful and beneficial in a national point of view. Its colossuses, its sphinxes, its Memnons, its obelisks, its labyrinths, its pyramids, and its temples, were all massive and amazing erections of their kind; which it might seem as if ages must have been required to construct, and eternity itself would be requisite to destroy: yet which of them, except the temples, were really useful, really necessary, or a benefit to the nation at large? A nation must have its religion; and therefore it must have its temples: and the temples of ancient Egypt may have been necessary and useful: but its obelisks, its pyramids, its labyrinths, and its colossal images, which astonish us most at present by their magnitude, by the vastness of their conception, and by the scale of their execution, (if the truth must be spoken,) were utterly worthless for any practical use or purpose; were of no benefit to the nation whatsoever; were designed for show and ostentation only, even though sanctified by the name of religion itself.

Among these monuments however, there was one of a

different character ; as great and stupendous as any of those to which we have alluded, yet really a national blessing : a work which perpetuated the benefits of the inundation, without its inconveniences, throughout the year ; a work which provided a Nile for the winter as nature had done for the summer. Such a work deserved the name of a public benefit : and whatsoever time and labour and expense it might require, it could not be said that they were laid out on an empty and vainglorious and utterly unprofitable display : on the follies and extravagancies of power without restraint, or of wealth which knew not what to do with its own resources. Such a work was not likely to be forgotten, nor the name of its author to fall into oblivion. It would live in the grateful recollection of the people, as much as of the priests, of Egypt : and while the work itself survived and continued to dispense its blessings, the name of its author would survive too ; and even the priests themselves, notwithstanding all their influence, could not have obliterated it, though they might have desired do so.

The work to which we refer, in these observations, was the Great Foss, or excavation, which served as a reservoir of the waters of the Nile after the inundation was over ; the Nile flowing through it, and filling it with its waters, at the time of the inundation, and the waters themselves being afterwards retained in it by its own mounds or embankments. It was a lake, artificially excavated for this very purpose, yet 3600 stades in circuit ; that is, embracing an area equal to that of the Delta of Egypt itself : and it was 50 orguæ or ells, that is, three Greek plethra, in depth<sup>f</sup>. It cannot be necessary to prove that such a work was a stupendous undertaking in itself, and yet was not intended for mere display and ostentation ; but to answer an useful purpose, and to be productive of a substantial benefit.

This work is attributed by Herodotus to a king whom he calls Mœris<sup>f</sup> : and it does not appear to have been known in his time by any name but that of the Lake of Mœris. There can be no doubt that that was its proper name in Egypt ;

<sup>f</sup> Herodotus, ii. 149 ; cf. 4. 69. 148 : H. N. v. 9. 325 : xxxvi. 16. Ælian, iii. 91. Cf. Diodorus, i. 51, 52. 66. De Nat. Anim. vi. 7 : 32. Strabo, xvii. 1. 451, 452. 454. Pliny,

and that Mœris was the name of its author too; and consequently of a former king of Egypt. And it is of very little importance that no Mœris occurs in the monumental lists of the kings of Egypt, or in the dynasties, as they are called; though in strictness, and according to the most approved arrangement of those dynasties which has ever yet been made, he ought to have been found at the end of the xviii<sup>th</sup> or at the beginning of the xix<sup>th</sup>. But how absurd to look for any real historical name in such a quarter as this! in which not a single name represents a reality; until they come to the times of Shishak, and to those which follow, at least.

We may take it for granted that, in conjunction with the lake of which he was the author, common fame and tradition alone were competent to hand down the name of this king, and actually did so. We know of nothing in ancient history, the fact of which can be considered to have been attested by stronger and surer evidence than this: that the Lake of Mœris in Egypt was the work of one of their own kings; and that the name of that king was Mœris. And though the monuments know nothing of such a Mœris, Herodotus had heard of him on the spot; his lake was there both then, and to the latest times, to speak for itself; the priests were not ignorant of his existence, for they too spoke to Herodotus concerning him; the common people could not be ignorant of his existence while they had his lake among them; and the name of Mœris would be daily and hourly in the mouth of every peasant in Egypt, who was daily and hourly requiring and daily and hourly experiencing the benefits of his lake.

It is agreed that Herodotus some time or other recited his history at the Olympic games: and that he must have done so either Olymp. 81 B. C. 456, or Olymp. 82 B. C. 452<sup>w</sup>. He must therefore have visited Egypt, and written his account of that country, before this time. Now there is a remarkable statement in his second book, where he is speaking of the general rise of the level of the Delta, as the gradual effect of the inundation, from the time of Mœris to his own, when he was in Egypt: *Καὶ Μοίρι οὐκ ἦν ἔτεα εἰνακόςια τετελευτηκότι, ὅτε τῶν ἱρέων ταῦτα ἐγὼ ἤκουον*<sup>x</sup>: the meaning of which is, that Mœris had not yet been dead 900 years, when

<sup>w</sup> See the *Fasti Hellenici* of Mr. Clinton, in Annis.

<sup>x</sup> ii. 13.



he himself was in Egypt. Now if we may assume the later date of the recitation of his history, Olymp. 82, B. C. 452, as the more likely to have been the truth; we may assume that he must have been in Egypt about B. C. 456: and therefore, if Mœris had not then been 900 years dead, he must have been living B. C. 1350, only 894 years before B. C. 456: and much more so, if Herodotus himself was in Egypt any time earlier than B. C. 456.

We consider it extremely probable that in these 900 years, from the time when Herodotus was in Egypt to the time of Mœris, we recover a portion of the true and authentic chronology of the Egyptians; not the less valuable for being only accidentally made known, and as it were by the way. If however the time of Mœris went back to B. C. 1350, it went back to the epoch of the Sothiacal period. This fact therefore supplies the answer to the question which we began with proposing; What king was reigning in Egypt at the epoch of the Sothiacal period? It must have been Mœris. Whether he began to reign indeed just at the epoch of this period, may be a doubtful point; yet it is not impossible that, as Nabonassar came to the throne at Babylon at the epoch of the *æra* called by his name there, and Yezdejerd to the throne in Persia, at the epoch of the *æra* of *Yezdejerd*, so might Mœris have come to the throne in Egypt, at the epoch of the Sothiacal period. If this was the case, the *æra* of this period would be virtually the *æra* of Mœris: and as there can be no doubt that the priests were both able to keep an accurate account of the reckoning of the Sothiacal period, from its beginning to the time of Herodotus, and actually must have done so; it is no wonder that they should have kept an accurate account of the interval from the time of Mœris to the time of Herodotus also. If the epoch of the Sothiacal period falls in the reign of this king, the excavator of this lake; the rise of the worship of Osiris and Isis in Egypt falls in his reign also. Now Herodotus tells us, there were two pyramids erected in the midst of this lake, considerable buildings in themselves, though small and insignificant in comparison of the buildings commonly known by that name. We should be entirely of opinion that these

were the first buildings of that kind which were ever constructed in Egypt. They were much older, at least, than the pyramids of Memphis, or as they are called at present, the pyramids of Gizeh. The remarkable circumstance about these pyramids is that they were of the same size and dimensions, two in number, and only two; yet erected in the midst of the Lake of Mœris, the vast and capacious reservoir intended to imprison and detain the Nile itself. We should explain these facts at once, by considering these two pyramids intended for Osiris and Isis—monuments erected to Osiris and Isis, (i. e. to the two types of the living principle in every form of its developement, but first and properly in the vegetable,) in the midst of the element of water; of that water too, from which Egypt itself derived its vitality—and to which it ultimately owed every form of life, not only vegetable, but animal also. It is no objection that, according to Diodorus, these two pyramids were intended one of them in honour of Mœris himself, the other in honour of his queen. Herodotus does not say this of them too. We consider this account in reality a confirmation, rather than a disproof, of our conjecture, that one of them was actually intended for Osiris, and the other for Isis; i. e. for the former as the masculine impersonation of all being and all life, for the latter as the female; yet for both in the relation of husband and wife.

Lastly, if we compare together certain notices, taken from some of the lost works of Ælian, which occur in Suidas under the terms, *Ἰαχὴν*<sup>z</sup>, *ἐναύειν*, *Σείριος*, *ιερογραμματεῖς*<sup>a</sup>, we shall see that tradition had preserved among the Egyptians the name of an hierogrammateus, called Jachen, to whom it attributed the discovery of *τὴν ἀμφὶ τὸν Κύναν τὸν Σείριον πρωτόστην ἀνατολήν*, and of some mystical influence or other in disarming or mitigating the deleterious power of the star; and in the reign of a king called Senyas. We do not pretend to vouch for the truth of this tradition; but if the very first discovery of the rising of Sirius means any thing, it probably means the first rising connected with the Sothiacal period; in which case this temple-scribe called Jachen would bid fair to have been the first author of that period, and by parity of consequence, in all probability, the first author of the fable of Osiris and Isis in Egypt too.

<sup>z</sup> 1725, Gaisfordii.<sup>a</sup> Ibid. 1738.

## DISSERTATION XV.

### *On the Phœnix Period or Phœnix Cycle of the Egyptians.*

---

#### CHAPTER I.

---

##### SECTION I.—*The fable of the Phœnix an allegorical method of conveying some important truth.*

THERE is little reason to doubt that the well known Egyptian fable of the Phœnix was purposely invented in order to perpetuate and yet to conceal some important truth. And to judge from the accounts which have been transmitted to posterity concerning it, we should have every reason to conclude it must have been one of the oldest fables, conceived even by the Egyptians themselves. This conclusion is confirmed by the matter of fact. The fable of the Phœnix *is* the oldest Egyptian fable of which any thing has been made known: and the period or cycle connected with this fable from the first goes further back than any other of the cycles of the Egyptians whatsoever.

None of the fables of antiquity is more beautiful in the conception than this: none was more generally received, in all parts of the world, even the most remote from each other, as well as from Egypt the birthplace of the fable itself. We find it in the most easternly parts of the ancient world, India and China, and in the most northernly, Sweden and Norway, at once. And there is one circumstance in particular to distinguish this one of the fictions of ancient Egypt from every other of like kind and of later date; that no falsification of the truth of religion, no corruption and deterioration of morals, such as only too sensibly and too permanently marked and branded the first introduction of the fable of Osiris and Isis, was involved in the fable of the Phœnix, or can be

traced up to its implicit reception. It stands clear of every such contamination, both in its first conception, and in its natural and necessary effects: though we would not undertake to say that it continued equally innocent to the last; and that it was not itself in the course of time connected with the idolatry and superstition of antiquity.

It does not appear that the literal truth of this fable was doubted of by the ancients. The most sceptical among them, with regard to the pretended appearances of the Phœnix in their own time, (for example Tacitus,) admit notwithstanding that this bird had an actual existence, and that it was sometimes seen. It is not surprising therefore that the early Christians themselves in this respect were not exempt from the common prejudice; that they too believed in the existence of the Phœnix; and that on the traditionary accounts of its disappearing at stated times, and its appearing again immediately after, in possession of new life and beauty, they founded a popular argument in favour of the Christian doctrine of the resurrection itself; especially that of the resurrection of the body in a glorified form, out of its own ashes and its own corruption; to which the case of this extraordinary bird, thus renewed at stated times by the dissolution and destruction of the substance of the parent bird itself, to enter on a fresh term of existence, resembling immortality in its duration, presented so close and so striking an analogy.

No fable of antiquity too has excited more interest among the learned and curious in modern times. Chronologers have always suspected that under the mystical appearance and disappearance of the Phœnix some real period, sidereal, solar, or lunar lay concealed; and they have long been endeavouring to find out what it was. The course of our own subject requires that we should now enter on the consideration of this Phœnix period. What success may await us we leave to the judgment of our readers, and to the opinion which they shall see reason to form of the account which we may have to submit to them, and of the proofs by which it may appear to be supported. But should it even appear, after a fair and impartial consideration of these proofs, that the true meaning of this beautiful and interesting fable has



at length been placed in a clear and indisputable light; let them remember that the praise of the discovery is due to the same Divine Wisdom and Goodness which has permitted the primitive calendar of all mankind (itself so long lost) to be recovered in our own time; and through that has opened a way to our researches into these and similar mysteries, hitherto concealed from our knowledge; which being faithfully and patiently followed, step by step, as it marked out and prescribed our course, could not fail to lead to their discovery at last.

SECTION II.—*Testimonies to the Phœnix, and to the Phœnix period.*

The first thing to be done is to collect the testimonies of antiquity, (or the principal part of them,) to the fable itself and to its circumstances: in order that we may be able to see beforehand in what respects they agree, and in what they differ. It is of no importance to this comparison in what order these accounts are produced; provided that those which are to the same effect in general are more or less brought together. We shall however begin with the oldest: and that is the account of Herodotus.

i. "Ἔστι δὲ καὶ ἄλλος ὄρνις ἱρὸς τῷ οὐνομα Φοῖνιξ. ἐγὼ μὲν μιν οὐκ εἶδον εἰ μὴ ὅσον γραφῇ· καὶ γὰρ δὴ καὶ σπάνιος ἐπιφοιτᾷ σφι, διὰ ἐτέων ὥς Ἡλιουπολίται λέγουσι πεντακοσίων. φοιτᾷν δὲ τότε φασὶ ἐπεὰν οἱ ἀποθάνῃ ὁ πατήρ. ἔστι δὲ εἰ τῇ γραφῇ παρόμοιος τοσούδε καὶ τοιούδε· τὰ μὲν αὐτοῦ χρυσόκομα τῶν πτερῶν τὰ δὲ ἐρυθρά· ἐς τὰ μάλιστα αἰετῷ περιήγησιν ὁμοιότατος καὶ τὸ μέγαθος. τοῦτον δὲ λέγουσι μηχανᾶσθαι τάδε, ἔμοι μὲν οὐ πιστὰ λέγοντες· ἐξ Ἀραβίης ὀρμεώμενον ἐς τὸ ἱρὸν τοῦ Ἥλιου κομίζειν τὸν πατέρα ἐν σμύρνῃ ἐμπλάσσοντα καὶ θάπτειν ἐν τοῦ Ἥλιου τῷ ἱρῷ. κομίζειν δὲ οὕτω· πρῶτον τῆς σμύρνης ὠδὸν πλάσσειν ὅσον τε δυνατός ἐστι φέρειν· μετὰ δὲ πειρᾶσθαι αὐτὸ φορέοντα· ἐπεὰν δὲ ἀποπειρηθῇ οὕτω δὴ κοιλήναντα τὸ ὠδὸν τὸν πατέρα ἐς αὐτὸ ἐντιθέναι· σμύρνη δὲ ἄλλῃ ἐμπλάσσειν τοῦτο καθότι τοῦ ὠοῦ ἐγκοιλήνας ἐνέθηκε τὸν πατέρα· ἐγκειμένου δὲ τοῦ πατρὸς γίνεσθαι τωὐτὸ βάρος· ἐμπλάσαντα δὲ κομίζειν μιν ἐπ' Αἰγύπτου ἐς τοῦ Ἥλιου τὸ ἱρὸν. ταῦτα μὲν τοῦτον τὸν ὄρνιν λέγουσι ποιέειν<sup>b</sup>. \*

\* If Porphyry, (quoted by Eusebius, *Præparatio Evangelica*, x. 3. § 16.

<sup>b</sup> Herodotus, ii. 73.

- ii. Una est quæ reparet seque ipsa reseminet ales :  
 Assyrii Phœnica vocant. non fruge neque herbis  
 Sed thuris lacrymis et succo vivit amomi.  
 Hæc ubi quinque suæ complevit sæcula vitæ,  
 Illicis in ramis tremulæve cacumine palmæ  
 Unguibus et pando nidum sibi construit ore :  
 Quo simul ac casias et nardi lenis aristas  
 Quassaque cum fulva substravit cinnama myrrha  
 Se super imponit, finitque in odoribus ævum.  
 Inde ferunt totidem qui vivere debeat annos  
 Corpore de patrio parvum Phœnica renasci.  
 Cum dedit huic ætas vires onerique ferendo est,  
 Ponderibus nidi ramos levat arboris altæ,  
 Fertque pius cineresque suos patriumque sepulcrum,  
 Perque leves auras Hyperionis urbe potitus  
 Ante fores sacras Hyperionis æde reponit<sup>c</sup>.

iii. Καὶ τὸν χρονίως δὲ ἀπὸ ξένης ἐπιδημοῦντα δηλοῦντες πάλιν  
 Φοίνικα τὸ ὄρνειον ζωγραφοῦσιν. οὗτος γὰρ εἰς Αἴγυπτον ἐπὰν ὁ  
 χρόνος τοῦ μοιριδίου αὐτὸν καταλαμβάνειν μέλλῃ διὰ πεντακοσίω  
 ἐτῶν παραγίνεται. καὶ ἀποδοὺς ἔαν φθάσῃ ἐντὸς τῆς Αἰγυπτίας  
 τὸ χρεῶν κηδεύεται μυστικῶς, καὶ ὅσα ἐπὶ τῶν ἄλλων ἱερῶν ζῶων  
 Αἰγύπτιοι τελοῦσι ταῦτα καὶ τῷ Φοίνικι ὑπάρχειν ὀφείλει. λέ-

p. 459.) is to be believed, Herodotus borrowed this description of the Phoenix from Hecataeus of Miletus; as he is also said to have done his account of the hippopotamus, and of the mode of catching the crocodile, in Egypt; with a few alterations in each of these instances: \*Η ὥς Ἡρόδοτος ἐν τῇ δευτέρᾳ πολλὰ Ἐκαταίου τοῦ Μιλησίου κατὰ λέξιν μετήνεγκεν ἐκ τῆς Περιηγήσεως, βραχέα παραποιήσας, τὰ τοῦ Φοίνικος ὀρνέου, καὶ περὶ τοῦ ποταμίου ἵππου, καὶ τῆς θήρας τῶν κροκοδείλων.

On this principle, Hecataeus of Miletus (who was sixty years older than Herodotus) must have been one of the first of the Greeks to leave any testimony on record to the length of the Phoenix period, as one of 500 years; for we can scarcely suppose that if Herodotus' account agreed so closely with his in all other respects, as to appear to have been taken from it, there could have been any difference between them in *this* circumstance, one of the most important of all.

The next testimony which we quote is from Ovid: and Ovid puts that into the mouth of Pythagoras. Pythagoras was older even than Hecataeus: and it is certain that he visited Egypt: and though it is not known that he left any writings behind him, (cf. Josephus, *Contra Apion.* i. 22.) yet Ovid might have found this argument for the transmigration of souls, from the analogy of the Phoenix, in some Pythagorean writer, and attributed to Pythagoras himself.

<sup>c</sup> Ovid. *Metamorph.* xv. 392.

γεται γὰρ μᾶλλον τῶν ἄλλων (ἀνθρώπων) ἡλίφ χαίρειν ὑπ' Αἰγυπτίων. διὸ καὶ τὸν Νεῖλον αὐτοῖς πλημμυρεῖν ὑπὸ τῆς θερμότητος τούτου τοῦ θεοῦ· περὶ οὗ μικρὸν ἔμπροσθεν ὁ λόγος ἀποδηθήσεται σοι (lege ἀπεδόθη. See cap. 21.) παρ' ἡμῶν<sup>d</sup>.

iv. Καὶ τὸν Φοῖνικα δὲ τὸν ὄρνιν τὸν διὰ πεντακοσίων ἐτῶν ἐς Αἴγυπτον ἦκοντα πέτεσθαι μὲν ἐν τῇ Ἰνδικῇ τὸν χρόνον τούτον· εἶναι δὲ ἕνα (supple τῶν) ἐκδιδόμενον (lege ἐκδιδομένων) τῶν ἀκτίων (lege ἀκτίνας) καὶ χρυσῷ λάμποντα (lege λαμπόντων) μέγεθος αἵετος καὶ εἶδος, ἐς καλιάν τε ἰξάνειν τὴν ἐκ τοῦ ἀρώματος ποιουμένην αὐτῷ πρὸς ταῖς τοῦ Νεῖλου πηγαῖς. ἃ δὲ Αἰγύπτιοι περὶ αὐτοῦ ἄδουσιν ὡς ἐς Αἴγυπτον φέρεται καὶ Ἰνδοὶ ξυμμαρτυροῦσι, προσάδοντες τῷ λόγῳ τῷ (lege τὸ) τὸν Φοῖνικα τὸν ἐν τῇ καλιᾷ τηκόμενον προπεμπτηρίους ὕμνους αὐτῷ ἄδειν<sup>e</sup>.

v. De volucris præcipue referenda Phœnix semper unica. non enim coïtu concipitur partuve generatur. sed ubi quingentorum annorum ævo perpetua duravit, super exaggeratam variis odoribus struem sibi ipsa incubat solviturque : deinde putrescentium membrorum tabe concreta ipsa se concipit atque ex se rursus renascitur. cum adolevit ossa pristini corporis inclusa myrrha Ægyptum exportat, atque in urbe quam Solis adpellant fragrantibus archio bustis inferens memorando funere consecrat<sup>f</sup>.

vi. Μετὰ πεντακοσίων ἐτῶν φησὶν ἐπιδημεῖν τὸν Φοῖνικα τῇ Αἰγύπτῳ. οὕτω φησὶ καὶ Αἰλιανός. λέγει δὲ καὶ θάπτειν τὸ ὄρνειον τὸν αὐτοῦ πατέρα ἐν Ἡλιουπόλει·—“Ανευ δὲ λογιστικῆς οἱ Φοίνικες συμβάλλειν ἐτῶν πεντακοσίων ἴσασιν ἀριθμὸν, μαθηταὶ φύσεως τῆς σοφωτάτης ὄντες, καὶ διὰ ταῦτά τοι μήτε δακτύλων δεδεγμένοι ἢ ἄλλου τινὸς εἰς ἐπιστήμην ἀριθμητικῆς. ὑπὲρ οὗτου δὲ ἴσασι τοῦτο καὶ εἰδέναι ἀνάγκη αὐτοὺς δημῳδῆς ἐστὶν ὁ λόγος. τὸν δὲ τῶν πεντακοσίων ἐτῶν χρόνον πληρούμενον ἴσασιν Αἰγυπτίων ἢ τις ἢ οὐδεὶς, ὀλίγοι δὲ κομιδῇ καὶ οὗτοι τῶν ἱερέων. καὶ οὗτοι γοῦν πρὸς ἀλλήλους ὑπὲρ τούτων οὐ ῥαδίως συμβῆναι ἔχουσιν, ἀλλ' οἱ μὲν ἐρεσχελοῦσι σφᾶς ἑαυτοὺς ἐρίζοντες ἢ ὡς οὐ νῦν ἀλλ' ἐς ὕστερον ὅδε ὁ θεὸς ὄρνις ἀφίξεται, ἢ ὡς ἐχρῆν ἦκειν. ὁ δὲ ἄλλως ἐκείνων ἐρίζοντων ἀποσημαίνεται δαιμονίως τὸν

<sup>d</sup> Horapollon, i. 35 : cf. ii. 57, for a more particular account of its death.

<sup>e</sup> Philostratus, Vita Apollonii, iii. xiv. 152. D—153. A. Cf. Epp. 903. B. Deliciis; also Photius, Bibl. Cod. 241. 327. 29 : Philostratus, Vita Apol-

lonii: Tzetzes, Chiliades, v. Hist. vi. 394.

<sup>f</sup> Pomponius Mela, iii. 8 : cf. Seneca Epp. xlii, ad principium : Opp. ii.

<sup>g</sup> Anecdota Oxoniensia, iii. 365. 29 : Scholia ad Tzetzi Chiliadas, Chiliad v. 393.

καιρὸν, καὶ πάρεστιν· οἱ δὲ θύειν ἀνάγκη αὐτοὺς, καὶ ὁμολογεῖν ὅτι τὸν μὲν ἥλιον ἐν ταῖς λέσχαῖς καταδύειν ἄγουσι σχολὴν, οὐκ ἴσασι δὲ ὅσα οἱ ὄρνιθες. ἐκεῖνα δὲ ὧ πρὸς τῶν θεῶν οὐ σοφὰ εἶδέναι; ποῦ μὲν Αἰγυπτὸς ἐστὶ ποῦ δὲ καὶ Ἑλίουπολις ἐνθα αὐτῷ πέπρωται ἦκειν; καὶ ὅποι ποτὲ καταθέσθαι τὸν πατέρα χρὴ καὶ ἐν θήκαις τίσι; κ', τ. λ.<sup>h</sup>

vii. Ὅρνεον ... ἐστὶν δὲ προσονομάζεται Φοῖνιξ. τοῦτο μονογενὲς ὑπάρχον ζῷ ἔτη πεντακόσια. γενόμενον δὲ ἦδη πρὸς ἀπόλυσιν τοῦ ἀποθανεῖν αὐτὸ σηκὸν ἑαυτῷ ποιεῖ ἐκ λιβάνου καὶ σμύρνης καὶ τῶν λοιπῶν ἀρωμάτων, εἰς δὲ πληρωθέντος τοῦ χρόνου εἰσέρχεται, καὶ τελευτᾷ. σηπομένης δὲ τῆς σαρκὸς σκώληξ τις γεννᾶται, ὃς ἐκ τῆς ἱκμάδος τοῦ τετελευτηκότος ζώου ἀνατρεφόμενος πτεροφυεῖ· εἵτα γενναῖος γενόμενος αἶρει τὸν σηκὸν ἐκείνον ὅπου τὰ ὀστά τοῦ προγεγονότος ἐστὶ, καὶ ταῦτα βαστάζων διανύει ἀπὸ τῆς Ἀραβικῆς χωρας ἕως τῆς Αἰγύπτου εἰς τὴν λεγομένην Ἑλίου πόλιν· καὶ ἡμέρας βλεπόντων πάντων ἐπιστὰς ἐπὶ τὸν τοῦ ἡλίου βωμὸν τίθησιν αὐτὰ, καὶ οὕτως εἰς τοῦπίσω ἀφορμᾷ. οἱ οὖν ἱερεῖς ἐπισκέπτονται τὰς ἀναγραφὰς τῶν χρόνων καὶ εὐρίσκουσιν αὐτὸν πεντακοσιοστοῦ ἔτους πεπληρωμένον ἐληλυθέναι<sup>i</sup>.

viii. Φασὶ γὰρ ὄρνεόν τι μονογενὲς ὑπάρχειν πλουσίαν τῆς ἀναστάσεως παρέχον τὴν ἀπόδειξιν, ὃ λέγουσιν ἄζυγον ὑπάρχειν καὶ μόνον ἐν δημιουργίᾳ· Φοῖνικα δὲ τοῦτο προσαγορεύουσιν. οἱ δὲ ἱστοροῦσι κατὰ πεντακόσια ἔτη ἔρχεσθαι εἰς Αἴγυπτον ἐπὶ τὸν λεγόμενον Ἑλίου βωμὸν φέροντα πλήθος κινναμώμου κασσίας τε καὶ ξυλοβαλσάμου· καὶ στὰν πρὸς ἀνατολὰς ὥς αὐτοὶ φασὶ<sup>k</sup> τῷ ἡλίῳ προσευξάμενον αὐτομάτως φλεχθῆναι καὶ γενέσθαι κόνιν. ἐκ δὲ τῆς σποδιᾶς σκώληκα ἀναφυῆναι, καὶ τοῦτον θερμανθέντα μορφωθῆναι εἰς ἀρτιγενῆ Φοῖνικα. καὶ πτηνὸν γενόμενον ἐπ' Ἀραβίαν στείλασθαι ἥπερ ἐστὶ περαιτέρω τοῦ Αἰγυπτιακοῦ νομοῦ<sup>l</sup>.

ix. Phoenix avis Arabiae, dicta quod colorem phœnicem habeat, vel quod sit in toto orbe singularis et unica. nam Arabes singularem et unicam Phœnicem vocant<sup>m</sup>. hæc

<sup>h</sup> Ælian, De Natura Anim. vi. 58.

<sup>i</sup> Clemens Romanus, Epist. ad Cor. i. 25.

<sup>k</sup> Cf. Horapollo, ii. 57.

<sup>l</sup> Constitutiones Apostolicæ, v. 7. 246. B. See the same fable applied as an argument of the resurrection, and the Phoenix appealed to as the type of the glorified body, destined to rise out of the corruption of the natural body, in Tertullian, De Resurrectione Carnis,

13. Opp. iii. 233. Cyrill. Hierosolym. Catechesis xviii. 4. Opp. 262. Ambrose, Opp. i. 110. Hexæmeron, v. 79: De Fide Resurrectionis, liber ii. 59. Opp. ii. 1149. Eusebius, Vita Const. iv. lxxii. 562. D. Epiphanius, ii. 89. C. D. Ancoratus, lxxxv.

<sup>m</sup> This however was no doubt because the Phoenix itself was singular of its kind; and so was naturally transferred to any thing singular also, and



quingentis ultra annis vivens dum se viderit senuisse collectis aromatum virgultis rogam sibi instruit; et conversa ad radium solis alarum plausu voluntarium sibi incendium nutrit; sicque iterum de cineribus suis resurgit<sup>n</sup>.

κ. Περὶ τούτων καὶ τοῦ φανέντος ὀρνέου Ἐζεκιήλος ἐν τῇ Ἐξαγωγῇ παρεισάγει τινὰ λέγοντα τῷ Μωσῇ περὶ μὲν τῶν φοινίκων καὶ τῶν δώδεκα πηγῶν οὕτως<sup>ο</sup>, κ', τ. λ. εἶτα ὑποβὰς περὶ τοῦ φανέντος ὀρνέου διεξέρχεται Ρ.

Ἔτερον δὲ πρὸς τοῖσδ' εἴδομεν ῥῶον ξένον  
θαυμαστὸν οἶον οὐδέπω ὥρακέ τις·  
διπλοῦν γὰρ ἦν τὸ μῆκος αἵτου σχεδόν,  
πτεροῖσι ποικίλοισιν ἡδὲ χρώμασι·  
στήθος μὲν αὐτοῦ πορφυροῦν ἐφαίνετο,  
σκέλη δὲ μυλτόχρωτα, καὶ κατ' αὐχένα  
κροκωτίοις μαλλοῖσιν εὐτρεπίζετο.  
κάρα δὲ κοίτης ἡμέροις παρεμφερὲς,  
καὶ μηλίνῃ μὲν τῇ κόρῃ προσέβλεπε  
κύκλῳ· κόρῃ δὲ κόκκος ὥς ἐφαίνετο.  
φωὴν δὲ πάντων εἶχεν ἐκπρεπεστάτην.  
βασιλεὺς δὲ πάντων ὀρνέων ἐφαίνετο,  
ὥς ἦν νοῆσαι· πάντα γὰρ τὰ πτήν' ὁμοῦ  
ὀπισθεν αὐτοῦ δειλιῶντ' ἐπέσσυτο,  
αὐτὸς δὲ πρόσθεν ταῦρος ὥς γαυρούμενος  
ἔβαινε κραιπνὸν βῆμα βαστάζων ποδός.

xi. "Ὡσπερ ὁ Ἰνδικὸς ὄρνις ἐν Αἰγυπτίοις ἡλίου περιόδοις φύεται<sup>q</sup>—Σπανιώτερον δὲ δήπου τὸ γένος τῶν τοιούτων ψυχῶν ἢ τὸ τοῦ Φοίνικος ᾧ τὰς περιόδους μετροῦσιν Αἰγύπτιοι<sup>r</sup>—"Ἐτι δὲ ὡς ὑπὲρ εὐσεβείας τῶν ἀλόγων ζώων μαχόμενος ὁ Κέλσος παραλαμβάνει τὸ Ἀράβιον ζῶον τὸν φοίνικα, διὰ πολλῶν ἐτῶν ἐπιδημοῦν Αἰγύπτῳ<sup>s</sup>.

like which there was nothing in existence besides.

<sup>n</sup> Isidore, Origines, xii. 7. 110. A.

<sup>ο</sup> Eusebius, *Præp. Evang.* ix. 29. § 15. p. 421. From Alexander Polyhistor, who was here quoting the Exodus of Ezechiel Tragicus, where it gave an account of the arrival of Moses and the people of Israel at Elim; in which locality, as Scripture informs us, they found seventy palm trees and twelve springs of water; and, as Ezechiel Tragicus added, a certain bird also, which he proceeded to describe, and which there is no doubt he intended for the Phœ-

nix, though he has not expressly so called it.

<sup>p</sup> Ibid. § 16. p. 422.

<sup>q</sup> Aristides, xlv. 144. 5.

<sup>r</sup> Synesius, *Dion.* p. 33. Cf. Suidas in *Χοίνικες*.

<sup>s</sup> Origen, *contra Celsum*, iv. 98. Opp. i. 576. B. C. Cf. Artemidorus, *Oneirocritica*, iv. 49. Suidas, *Φοῖνιξ*. Lucian, *Navigium*, 44. 98. Opp. iii. 276. De Morte Peregrini, 27. Opp. iii. 350. Sidonius Apollinaris, ii. 416, 417: vii. 354-357: ix. 321. 323: xi. 124, 125: xxii. 50, 51.

xii. Qualiter Assyrios renovant incendia nidos,

Una decem quoties sæcula vixit avis :

Taliter exuta est veterem nova Roma senectam,

Et sumsit vultus præsidis ipsa sui <sup>t</sup>.

xiii.

Καὶ ξύλα κηῶντα φέρων γαμφώνυχι ταρσῶ  
χιλιέτης σοφὸς ὄρνις ἐπ' εὐόδμῳ σέο βωμῶ  
Φοῖνιξ τέρμα βίοιο φέρων αὐτοσπόρον ἀρχὴν  
τίκτεται, ὑστατίῳ χρόνῳ παλινάγρετος εἰκὼν,  
λύσας δ' ἐν πυρὶ γῆρας ἀμείβεται ἐκ πυρὸς ἥβην <sup>u</sup>.

xiv. Arcanum radiant oculi jubar : igneus ora

Cingit honos : rutilo cognatum vertice sidus

Adtollit cristatus apex tenebrasque serena

Luce secat : Tyrio pinguntur crura veneno :

Antevolant zephyros pennæ quas cæruleus ambit

Flore color, sparsoque super ditiescit in auro <sup>w</sup>.

\* \* \* \*

Namque ubi mille vias longinqua retorsit æstas

Tot ruerint hiemes toties ver cursibus actum

Quas tulit autumnus dederit cultoribus umbras ;

Tum multis gravior tandem subjungitur annis,

Lustrorum numero victus <sup>x</sup>. . . .

Tunc conscius ævi

Defuncti, reducisque parans exordia formæ,

Arentes tepidis de collibus eligit herbas,

Et cumulum texens pretiosa fronde Sabæum

Componit bustumque sibi partumque futurum <sup>y</sup>.

\* \* \* \*

Clara per Ægyptum placidis notissima sacris

Urbs Titana colit : centumque adcline columnis

Invehitur templum Thebæo monte revulsis.

Illic ut perhibent patriam de more reponit

Congeriam, vultumque dei veneratus herilem

Jam flammæ commendat onus, jam destinat aris

Semina reliquiasque sui <sup>z</sup>.

xv. Hoc nemus hos lucos avis incolit unica, Phoenix,

Unica, sed vivit morte refecta sua <sup>a</sup>.

\* \* \* \*

<sup>t</sup> Martial, Epigramm. v. 7. Ad Volcanum, De urbe instaurata.

<sup>u</sup> Nonnus, xl. 394. Bacchus is speaking to the Tyrian Hercules; whom he here addresses as the Sun—the Ra of Heliopolis.

<sup>w</sup> Claudian, xlv. Eidyllum i. Phœ-

nix, 17.

<sup>x</sup> Ibid. 27.

<sup>y</sup> Ibid. 40.

<sup>z</sup> Ibid. 89. Cf. Achilles Tatius, De Leucippes et Clitophontis Amoribus, iii. 24, 25.

<sup>a</sup> Vetus auctor, sub Lactantii nomine, 31.

Quæ postquam vitæ jam mille peregerit annos

Ac se reddiderint tempora longa gravem ;

Ut reparet lassum spatiis urgentibus ævum

Adsueti nemoris dulce cubile fugit <sup>u</sup>.

\* \* \* \*

Dirigit in Syriam celeres longæva volatus

Phœnices nomen cui dedit ipsa Venus.

Secretosque petit deserta per avia lucos,

Hic ubi per saltus sylva remota latet.

Tum legit ærio sublimem vertice palmam

Quæ gratum Phœnix \* ex ave nomen habet <sup>x</sup>.

Construit inde sibi seu nidum sive sepulcrum :

Nam perit ut vivat, se tamen ipsa creat <sup>v</sup>.

\* \* \* \*

Inde reformatur qualis fuit ante figura

Et Phœnix ruptis pullulat exuviis <sup>z</sup>.

\* \* \* \*

\* The idea of fixing on the palm tree, as the site of the last nest of the Phœnix, appears in the passage quoted from Ovid, put into the mouth of Pythagoras. In Greek the word *φοῖνιξ* is ambiguous. It may mean either the palm tree, or the bird so called : and some of the grammarians of antiquity derive even the name of the tree in Greek from the name of the bird. Isidore, *De Palma* : Hanc Græci *Φοίνικα* dicunt, quod diu duret, ex nomine avis illius Arabiæ, quæ multis annis vivere perhibetur <sup>a</sup>.

Because of this ambiguity, some of the fathers too mistook the meaning of Ps. xcii. 12, in which the word *φοῖνιξ* occurs <sup>b</sup> ; as if it was meant of the Phœnix, not of the palm tree. And yet this is something remarkable, considering that the Hebrew for palm tree was Thamer (which gave name to the city of Tadmor or Palmyra <sup>c</sup>;) and the Egyptian, as we may collect from Horapollon, was *βάις* <sup>d</sup>.

It would be a curious question to trace the word *φοῖνιξ* in the Greek language ; and whether it could originally have come to them from Egypt, in connection with the Egyptian word of which also they made *φοῖνιξ* ; and which word, in the Egyptian, as we shall see by and by, was a compound one, exprest by Phi-enec, but denoting *τὴν περίοδον*.

It cannot be doubted that the palm tree was considered by the ancients (by the Greeks at least) to possess the property of longevity, so characteristic of trees in general, to a degree which was something remarkable in comparison of trees themselves. Yet may not this notion too, in its application to the tree, be traced up to some confusion of the tree with the

<sup>u</sup> Vetus auctor, sub Lactantii nomine,

59. <sup>x</sup> Ibid. 65.

<sup>y</sup> Ibid. 77. <sup>z</sup> Ibid. 105.

<sup>a</sup> Origines, xvii. 7. 147. G.

<sup>b</sup> Tertullian, iii. 233. De Resurrec-

tione Carnis, 13. Epiphanius, ii. 203. Physiologi, xi.

<sup>c</sup> 1 Kings ix. 18. Jos. Antiq. Jud. viii. vi. 1. Cf. Pliny, H. N. v. 21.

<sup>d</sup> i. 3, 4. Cf. John xii. 13.

Principio color est qualis sub cortice lævi

Mitia quem croceum punica grana legunt.

bird, of which longevity was the most distinctive characteristic? 'Ο Φοῖνιξ μακρόβιον μὲν ἐστὶν ἐν τοῖς μάλιστα τῶν φυτῶν, ὥς που καὶ τὰ Ορφικά ταῦτα μεμαρτύρηκε·

ζῶον δ' ἴσον ἀκροκόμοισι

Φοινίκων ἔρνεσσι<sup>e</sup>.

There is a well-known fragment ascribed to Hesiod<sup>f</sup>, beginning,

Ἐννέα τοι ζῶει γενεὰς λακέρυζα κορώνη

ἀνδρῶν ἡβώντων κ', τ. λ.

which illustrates the common belief on this subject, and is often quoted by the ancients<sup>g</sup>. Ausonius has translated it, or rather paraphrased it, and has mistaken the Greek word in Hesiod, φοῖνιξ, for the Phœnix<sup>h</sup>:

Ter nova Nestoreos implent purpurea fusos

Et totiens terno cornix vivacior ævo:

Quam novies terni glomerantem sæcula tractus

Vincunt æripedes ter terno Nestore cervi:

Tres quorum ætates superat Phœbeius oscen,

Quem novies senior Gangeticus anteit ales,

Ales cinnameo radiatus tempora nido.

Yet he seems himself to have been of opinion that the term of the existence of the Phœnix was 1000 years:

Nec quia mille annos vivit Gangeticus ales,

Vicit centum oculos regie Pavo tuos.

The author, quoted under the name of Lactantius, supposed some peculiar connection between the Phœnix and the palm tree; by virtue of which, when preparing to die, it must repair to some tree of that description: yet not to a palm tree of Arabia, (though palm trees were certainly to be found there,) but of Phœnicia, or Syria. Perhaps the name of Phœnicia might have something to do in determining the locality where that *palm tree* was to be found, on which the *Phœnix* must end its life at last. We learn however from Pliny<sup>k</sup>, that there was a palm tree, unique of its kind, somewhere in a place called Chora, (as his context implies, in Babylonia, as Harduin understands it, in the Delta of Egypt, the Χώρα of Alexandria: see lib. vi. 39. p. 782: and cf. Ptolemy, Geographia, lib. iv. cap. v. § 46, Ἀλεξανδρέων Χώρας νομός κ', τ. λ.), supposed to die and to come to life again with the Phœnix, and from which the Phœnix itself derived its name: Mirumque de ea accepimus, cum Phœnice ave, quæ putatur ex hujus palmæ argumento nomen accepisse, iterum mori ac renasci ex

<sup>e</sup> Plutarch, Sympos. lib. viii. Quæstio viii. 2. Cf. Orphica, Fragmenta, xl.

<sup>f</sup> Fragmenta, l.

<sup>g</sup> Plutarch, De Oraculorum Defectu, xi. Pliny, H. N. vii. 49. Cf. Scholia

ad Aves Aristophanis, 610.

<sup>h</sup> xi. Gryphus ternarii numeri, 336.

l. 11. Cf. also xviii. 365. De ætatibus Animalium.

<sup>k</sup> H. N. xiii. 9. 684.



Qualis inest foliis quæ fert agreste papaver,  
 Cum pandit vestes Flora rubente polo.  
 Hoc humeri pectusque decens velamine fulgent :  
 Hoc caput hoc cervix summaque terga nitent.  
 Caudaque porrigitur fulvo distenta metallo,  
 In cujus maculis purpura mista rubet.  
 Clarum inter pennas insigne est desuper, Iris  
 Pingere ceu nubem desuper alta solet.  
 Albicat insignis mixto viridante smaragdo  
 Et puro cornu gemmea cuspis hiat.  
 Ingentes oculi : credas geminos hyacinthos :  
 Quorum de medio lucida flamma micat.  
 Æquatur toto capiti radiata corona  
 Phœbeï referens verticis alta decus.  
 Crura tegunt squamæ flavo distincta metallo :  
 Ast unguis roseus pingit honore color.  
 Effigies inter pavonis mista figuram  
 Cernitur et pictam Phasidis inter avem.  
 Magnitiem terris Arabum qua gignitur ales  
 Vix æquare potest seu fera seu sit avis <sup>f</sup>.

\* \* \* \* \*  
 Convenit Ægyptus tanti ad miracula visus,  
 Et raram volucrem turba salutat ovans.  
 Protinus inscalpunt sacrato in marmore formam,  
 Et signant titulo remque diemque novo <sup>g</sup>.

seipsa : eratque cum hæc proderem fertilis. If this palm tree really grew in Egypt—or if there was a palm tree answering to that description any where in the Delta of Egypt, a palm tree which thus sympathised with the Phoenix ; it would be the most likely of all things to have given occasion both to the name of the palm tree, in Greek, as the same with that of the Phoenix, and to the notion entertained by them of the longevity of this tree in particular. Nonnus appears to have meant some such tree, when he alludes to the aged palm in the line<sup>1</sup>,

ὕψιτενῇ δὲ πέτῃλα γέρων ἐκλίνατο Φοῖνιξ.

It is not improbable however that palm trees might exist, in various quarters, more than 500 years old ; that is, than one Phoenix period : especially in Babylonia, where the finest and largest trees of that kind were to be found <sup>m</sup>.

<sup>1</sup> Dionysiaca, xii. 274.

<sup>m</sup> Cf. Xenophon, Anabasis, ii. iii.  
 §. 10. 14–16 ; Cyropædia, vii. v. 11.  
 Theophrastus, Historia Pl. ii. cap. vi.  
 §. 2. 4. 6. 7. Pliny, H. N. vi. 31 ;

xiii. 6–9.

<sup>f</sup> Vetus auctor, sub Lactantii nomine, 125. Cf. Claudian, xxii. De Laudibus Stilichonis, ii. 414–420.

<sup>g</sup> Ibid. 151.

xvi. Ὁ Φοῖνιξ ὄρνεόν ἐστιν ἐν ἐν παντὶ τῷ βίῳ,  
 ταῶνος ὠραιότερος καὶ μείζων ἀσυγκρίτως,  
 καὶ χρυσοπρεπωδέστερος, θαῦμα καινὸν καὶ ξένον·  
 τὰς καλίας δὲ πηγνυταὶ δένδροις ἐξ ἀρωμάτων·  
 ἐπ' αὐτὴν δὲ θάνη γίνεται σκώληξ ἐκ τούτου πάλιν,  
 ὅς φοῖνιξ πάλιν γίνεται θαλπόμενος ἡλίῳ.  
 ἐπιδημεῖ δ' εἰς Αἴγυπτον θνήσκει δ' Αἰθιοπία·  
 ὥς ὁ Φιλόστρατος φησιν Ἀπολλωνίου βίῳ.  
 ὥς δ' ὁ Αἰγύπτιος ἱερογραμματεὺς Χαιρήμων  
 ἔδειξεν ἐν διδάγμασι τῶν ἱερῶν γραμμάτων,  
 ὁ Φοῖνιξ ἐξ τοῖς ἔτεσι καὶ ἐπτακισχιλίοις  
 θνήσκει, παραγενόμενος ἐν τόποις τοῖς Αἰγύπτου<sup>h</sup>.

xvii. Paullo Fabio L. Vitellio Coss. (U. C. 787, A. D. 34,) post longum sæculorum ambitum avis Phoenix in Ægyptum venit, præbuitque materiem doctissimis indigenarum et Græcorum multa super eo miraculo disserendi. de quibus congruunt, et plura ambigua, sed cognitu non absurda, promere libet. sacrum soli id animal, et ore ac distinctu pennarum a ceteris avibus diversum consentiunt, qui formam ejus definire. de numero annorum varia traduntur. maxime vulgatum quingentorum spatium. sunt qui adseverent mille quadringentos sexaginta unum interjici: prioresque alites Sesostride primum post Amaside dominantibus, dein Ptolemæo qui ex Macedonibus tertius regnavit, in civitatem cui Heliopolis nomen advolavisse, multo ceterarum volucrum comitatu novam faciem mirantium. sed antiquitas quidem obscura. inter Ptolemæum ac Tiberium minus ducenti quinquaginta anni fuerunt. unde nonnulli falsum hunc phœnicem neque Arabum e terris credidere, nihilque usurpavisse ex his quæ vetus memoria firmavit. confecto quippe annorum numero, ubi mors propinquet, suis in terris struere nidum eoque vim genitalem adfundere ex qua fetum oriri. et primam adulto curam sepeliendi patris, neque id temere, sed sublato murrhæ pondere tentatoque per longum iter, ubi par oneri par meatui sit, subire patrium corpus inque solis aram perferre atque adolere. hæc incerta et fabulosis aucta. ceterum adspici aliquando in Ægypto eam volucrem non ambigitur<sup>i</sup>.

<sup>h</sup> Tzetzes, Chiliades, v. Histor. vi.

<sup>i</sup> Tacitus, Annales, vi. 28. Cf. Dio, lvi. 26; cf. 27. Zonaras, xi. 3. 551. C. each of whom dates this reported ap-

pearance A. D. 36, in the last year of Tiberius. As also Cornelius Valerianus, quoted by Pliny, H. N. x. 2. p. 7. Solinus, xxxiii. §. 14.

xviii. Hujus anno sexto....(U. C. 799, A. D. 46: the true year was A. D. 47,) visus....apud Ægyptum Phoenix, quam volucrum ferunt anno quinquagesimo (corr. quingentesimo; see the Epitome, in *Claudio*, which has the right number) ex Arabia memoratos locos adire<sup>k</sup>.

xix. Apud eosdem nascitur Phoenix avis, aquilæ magnitudine, capite honorato in conum plumis exstantibus, cristatis faucibus, circa colla fulgore aureo, postera parte purpureus absque cauda, in qua roseis pennis cæruleus interscribitur nitor. probatum est quadraginta et quingentis eum durare annis. rogos suos struit cinnamis quos prope Panchaiam concinnat; in solis urbe strue altaribus superposita. cum hujus vita magni anni fieri conversionem rata fides est inter auctores: licet plurimi eorum magnum annum non quingentis et quadraginta sed duodecim millibus nongentis quinquaginta quatuor annis constare dicant<sup>l</sup>.

xx. Æthiopes atque Indi discolores maxime et inenarrabiles ferunt aves; et ante omnes nobilem Arabia Phœnicem, haud scio an fabulose, unum in toto orbe, nec visum magnopere. aquilæ narratur magnitudine, auri fulgore circa colla, cetero purpureus, cæruleam roseis caudam pennis distinguantibus, cristis fauces caputque plumeo apice honestante.

Primus atque diligentissimus togatorum de eo prodidit Manilius, senator ille, maximis nobilis doctrinis doctore nullo: neminem exstitisse qui viderit vescentem: sacrum in Arabia soli esse: vivere annis DIX (aliter DXI. XL. DXL. DLX. DCLX.): senescentem casiae thurisque succulis construere nidum, replere odoribus, et superemori. ex ossibus deinde et medullis ejus nasci primo ceu vermiculum: inde fieri pullum: principioque justa funeri priori reddere, et totum deferre nidum prope Panchaiam in Solis urbem, et in ara ibi deponere.

Quum hujus alitis vita magni conversionem anni fieri

<sup>k</sup> Aurelius Victor, Claudius. Cf. Pliny, H. N. x. 2. p. 7. Solinus, xxxiii. 14. Dexippus, apud Syncellum, 632. l. 5. Suidas, Φοινίξ.

<sup>l</sup> Solinus, Polyhistor, xxxiii. 11. The Magnus Annus of 12,954 years, here referred to, is that of Cicero, apud Hortensium suum. Tacitus, Dialogus de Caussis corruptæ eloquentiæ, 16: Nam si, sicut Cicero in Hortensio scribit,

is est magnus et verus annus quo eadem positio cœli siderumque quæ cum maxime est rursum existet; isque annus horum quos vocamus annorum xii MDCCCLIV (aliter xii MDCCCCLIV) complectitur. Cf. Macrobius, Somnium Scipionis, ii. cap. ii. Also Servius, ad Æneid. i. 269, where his text has 12,554; and ad Æneid. iii. 284, where it stands 12,954.

prodidit idem Manilius ; iterumque significationes tempestatum et siderum easdem reverti. hoc autem circa meridiem incipere, quo die signum Arietis sol intraverit. et fuisse ejus conversionis annum prodente se P. Licinio Cn. Cornelio Coss. ducentesimum quintum decimum<sup>m</sup> (aliter ccxxv.)

These two were consuls U. C. 657 of the Varronian reckoning, B. C. 97 : Cn. Cornelius Lentulus P. Licinius Crassus. Cf. Pliny, H. N. xxx. 3.

SECTION III.—*Observations on the preceding statements, and inferences from them.*

i. The first observation which may be made on the preceding testimonies is this: That, to judge from the concurrent accounts and common belief of antiquity as thus represented, the Phoenix must have been something singular of its kind: there could have been no such thing *in rerum natura* as two Phoenixes at one and the same time. And yet there was always *one* Phoenix. The succession of Phoenixes was never interrupted: and this mystical bird, having once come into existence in the person of one living type and representative of its proper genus and proper form, never afterwards became extinct.

It is indeed supposed, in each of these accounts, that the Phoenix which was destined to perpetuate this succession, and to represent its proper species for another period of the same kind, came into existence in some manner or other in the lifetime of the preceding Phoenix; but not in the shape of the full grown and perfect individual of the proper kind, only of the nascent or adolescent one; derived (as the necessity of the case required, if it was to be a reproduction of the same kind of being,) from the substance of the parent bird, and therefore still in its lifetime; but not yet mature: not yet adapted to be the representative of the nature of the parent bird in all respects, until after its death.

ii. It must be inferred from these testimonies without exception, that the Phoenix was never supposed to become visible, never to be actually seen, in any quarter of the ancient world, but Egypt; nor in any locality in Egypt itself

<sup>m</sup> Pliny, H. N. x. 2.



except that of the ancient Heliopolis. The bird itself was a solitary being. Its existence was supposed to be passed at a distance even from Egypt; in Arabia, i. e. in the solitude and seclusion of the desert; in India, in Æthiopia; or wheresoever it might be conceived to be most effectually concealed from view and observation. If these representations made part of the history of this bird from the first, the foundation on which they rested must have been *this*; Though the Phœnix must always be somewhere in existence, it could never be visible any where except in Egypt, nor any where in Egypt except at Heliopolis.

iii. It must also be inferred from these testimonies that, though the Phœnix was never supposed to be visible except at Heliopolis in Egypt, it was not to be seen at all times even at Heliopolis. It was not to be seen at Heliopolis itself in the whole period of its existence except twice; once when it was coming into existence, and again when it was ceasing to exist. It must come into existence at Heliopolis, and it must cease to exist at Heliopolis: and therefore it must be seen at Heliopolis twice in the course of its existence; once at its beginning and a second time at its end. At any other period of its existence but these two, it was no more to be seen at Heliopolis than any where else.

If these circumstances too made a part of the conception and of the representation of the fable from the first, (as they appear to have done,) they are evidently of the greatest importance to the discovery of the meaning of the fable itself: especially if any thing like the doctrine of a period or cycle of a certain kind was intended to be conveyed by it. A period or cycle is necessarily singular of its kind. There can never be more than one such in existence at once. And yet it is something perpetual; something which cannot cease; something which must be repeated and reiterated; something which can no sooner have come to an end than it must begin again, and go on in the same way, and for the same length of time, as before. A period or cycle can never want its proper representative at a given time, to carry on the succession of such periods in general: and yet there can never be more than one such in existence at once, nor serving that purpose at a given time. A solar, a lunar, or a sidereal

period too must involve the distinction of meridians. It must be adapted to some meridian; and yet to no meridian but its own. Nothing would be clearer consequently, or more certain, than it is from the preceding accounts, that if the fable of the Phoenix did suppose a period of some kind from the first, solar, lunar, or sidereal, in which there must necessarily be a constant reference to some meridian, the meridian recognised by it must have been that of the ancient Heliopolis in Egypt.

And this being the case, we may very well be permitted to call in question the truth of some parts of the preceding accounts—relating to the supposed circumstances of the termination of the existence of the Phoenix, and to those of its coming to life again. According to these representations, the parent bird died in Arabia, and the young bird was produced in Arabia\*: and though the parent bird is supposed even in this case to be brought to Heliopolis in Egypt, it is not in order to die at Heliopolis, but in order to be buried there: it is not to give birth to the young bird there, but as carried thither by the young bird itself, already born and already arrived at maturity. If the fable of the Phoenix really involved the doctrine of a period of any kind, and of the distinction of meridians, it is manifest that these representations would be inconsistent with its original conception; and therefore that they could not have entered into the original form of the

\* It appears to us that the connection of Arabia with the fable of the Phoenix was altogether *κατὰ συμβεβηκός* or *per accidens*; and due simply to the circumstance that Heliopolis itself its proper city was one of the nearest to the desert of Arabia, in Egypt. It stood on the confines of the Delta and of the desert of Arabia. *Unum præterea intus et Arabiæ conterminum claritatis magnæ solis oppidum*: Pliny, H. N. v. 11. Cf. Strabo, xvii. 1. 'Ἡ μὲν οὖν Ἡλιουπόλις ἐν τῇ Ἀραβίᾳ ἐστίν. And according to Juba, quoted by Pliny, H. N. vi. 34, the Arabians were the founders of Heliopolis itself: *Solis quoque oppidum quod non procul Memphi in Ægypto situm diximus Arabas conditores habere*. Stephanus Byz. in nomine seems to make a distinction between the Egyptian Heliopolis and the Arabian, placing the latter in the *Aromatifera regio* of Arabia itself. Ptolemy however, *Geographia*, lib. iv. cap. v. § 54, has, *Καὶ ἐν μεθωρίοις Ἀραβίας καὶ Ἀφροδιτοπόλεως Βαβυλῶν, Ἡλιούπολις*, and *Ἡρώων πόλις*: and yet § 53, just before, he mentions the *νομός Ἡλιουπόλεως* in the proper order, and its metropolis or principal city, from which it took its name, as *Ἡλίου ἢ Ὀνίου πόλις*.

story connected with it. Nor do they appear indeed in all our accounts. They make part of Herodotus': but they do not enter into that of Horapollo: which we should consider to be the most genuine and authentic of all, the most faithful version of the traditional history of this mystical bird from the first; at least in this respect. According to this account, the old Phœnix comes expressly to Heliopolis at the proper time, to end its existence there; and the young Phœnix at the proper time comes into being at Heliopolis also. On this principle there was a stated and regular connection between this bird and Heliopolis; but only at two periods in its existence. It must be there when it came into existence, and it must be there when it went out of existence. All this is so natural and even so necessary, on the supposition of the concealed reference, under the exterior of this fable, of a certain cycle to a certain meridian; that we cannot doubt it must have been the order of things supposed by the fable, from the first. It is asserted by Horapollo, and by others of our testimonies; nor do we hesitate to assume it as the truth.

iv. It is clearly implied in all the preceding testimonies that there was the closest connection between the Phœnix and the sun. It is agreed that it was sacred to the sun: that the city, where only, if any where, it was to be seen, was the city of the sun; that being the name of the city in Greek, *Ἡλιούπολις*, or Heliopolis. In the city of the sun, in the temple of the sun, and even on the altar of the sun there, it terminated its existence: and in this temple it was buried: and in this temple, in due time, it came to life again, to stand in the same relation to the sun, as the living bird of the sun, for another period of the same kind as before. Nothing then may be more certainly taken for granted than that the Phœnix and the sun in the original conception of the fable must have been connected in a peculiar manner. There is nothing in the accounts of the fable which have been handed down to us to imply the slightest connection with the moon; nor, as far as we have yet discovered, even with the stars. And if we suppose the doctrine of a period or cycle of any kind to have entered into the fable from the first, the inference from this distinction too would evidently

be of great importance to the discovery of the kind of period or cycle actually intended by it: viz. as neither a lunar nor a sidereal, but a solar, one of some kind or other.

SECTION IV.—*Confirmation of the conclusion that the Phœnix was the type of a period by the sense of the hieroglyphical symbol of the Phœnix.*

If we proceed in the next place to inquire into the meaning, supposed to be attached to this symbol of the Phœnix, when used as an hieroglyphical device of a certain kind; and if we may only assume that these hieroglyphical senses of the symbol have been correctly explained by Horapollo; we shall find that this particular device of the Phœnix appears to have been so employed in three different meanings at least.

i. It was used as a symbol of longevity; of long-continuing-existence<sup>n</sup>: *Ψυχὴν δὲ ἐνταῦθα πολλὸν χρόνον διατρίβουσιν βουλόμενοι γράψαι, ἢ πλημμύραν, φοίνικα τὸ ὄρνειον ζωγραφοῦσι. ψυχὴν μὲν ἐπειδὴ πάντων μὲν τῶν ἐν τῷ κόσμῳ πολυχρονιώτατον ὑπάρχει τοῦτο τὸ ζῶον· πλημμύραν δὲ ἐπειδὴ ἡλίου ἐστὶν ὁ φοῖνιξ σύμβολον, οὗ μὴδὲν ἐστὶ πλείον κατὰ τὸν κόσμον· πάντων γὰρ ἐπιβαίνει καὶ πάντας ἐξερευνᾷ ὁ ἥλιος\*.*

ii. It was used as a familiar mode of representing the idea of

\* We do not propose to specify all the meanings attributed to the hieroglyphical symbol of the Phœnix: nor is it necessary we should. With regard to this one of the *πλημμύρα* (overflowing or inundation) Horapollo's testimony is important, in so distinctly asserting the relation of the Phœnix to the sun. But to derive this particular signification of the Phœnix hieroglyphically from that relation is a farfetched and unnatural idea. The Phœnix had a virtual connection with the rise of the Nile through the lunar mansions; as we shall see hereafter. In the course of time it came to have a still closer connection with it; and even with the inundation properly so called; that is, with the time when the Nile, being full, overflows and inundates the country. This is the most natural way of accounting for its being used as the symbol of an inundation, a fulness, a redundancy, an overflowing of any kind.

n i. 34. The Egyptian word for the soul, according to Horapollo, was *bat* (i. 7.) And that for the palm tree seems to have been *baïs*. These would resemble each other; and it was very natural to make the Phœnix in the sense of the palm tree, *baïs*, the symbol

of *bat* the soul. But before the Egyptians transferred the symbol of the Phœnix, in the sense of the bird so called, to the soul, it is probable they had become aware of the ambiguity of the word *φοῖνιξ* in Greek, as denoting both the Phœnix and the palm tree.



a return from abroad after a long absence. The passage which ascertains this fact was produced *supra*<sup>o</sup>. It confirms and illustrates this interpretation of the symbol, that according to sir Gardiner Wilkinson<sup>p</sup> one of the devices of the sails of ships among the Egyptians was a Phoenix; and, as every one must admit, a very proper and significant one, with such a meaning as this second of the senses assigned it by Horapollo, in the case of those who were obliged to cross the seas to foreign parts, and to be much from home.

iii. It was the type or symbol of a *restitution*; of a period of some kind, only *not of short duration*; after which the same course of things was supposed to begin again, in order to proceed afresh in the same way: 'Αποκατάστασιν δὲ πολυχρόνιον βουλόμενοι σημήναι φοίνικα τὸ ὄρνεον ζωγραφοῦσιν. ἐκεῖνος γὰρ ὅτε γεννᾶται ἀποκατάστασις γίνεται πραγμάτων. γεννᾶται δὲ τοιούτῳ τρόπῳ. ὅταν μέλλῃ τελευτᾶν ὁ φοῖνιξ ῥήσσει ἑαυτὸν ἐπὶ τὴν γῆν, καὶ ὀπῆν ἐκ τοῦ ῥήγματος λαμβάνει. καὶ ἐκ τοῦ ἰχώρος τοῦ καταρρέοντος διὰ τῆς ὀπῆς ἄλλος γεννᾶται· οὗτός τε ἅμα τῷ πτεροφυῆσαι σὺν τῷ πατρὶ πορεύεται εἰς τὴν Ἥλιου πόλιν τὴν ἐν Αἰγύπτῳ. καὶ παραγενόμενος ἐκεῖ (ὁ πατὴρ) ἅμα τῇ ἡλίῳ ἀνατολῇ ἐκείσε τελευτᾷ. καὶ μετὰ τὸν θάνατον τοῦ πατρὸς ὁ νεοσσὸς πάλιν ἐπὶ τὴν ἰδίαν πατρίδα ἄπεισιν. οἱ δὲ ἱερεῖς τῆς Αἰγύπτου τοῦτον τὸν ἀποθανόντα φοίνικα θάπτουσιν<sup>q</sup>.

Now it is easy to perceive that, among these three meanings of the same symbol, the first and the second might readily be derived from the third; if that was previously in existence and commonly recognised. It is clear from this last interpretation of it that the Phoenix was the type of a period. Now every period must be of a certain duration; and some may be of long duration. If the Phoenix was the symbol of a period of this kind in particular, it would be one of the most obvious types of continued existence, that is of longevity, also: and thus we should account for the first of the senses enumerated above, simply from the acknowledged reception of the last. Yet every period of stated duration, however long, must come to an end at last: and therefore the Phoenix, even in this point of view, might still be a symbol of a return from abroad after a long interval of absence.

We may safely infer therefore that of these three meanings,

the last must have been prior to the other two; and the original idea from which both of these were derived. It follows that among these three this last must have been its first and most proper meaning; and that, whatsoever else the Phœnix might denote in the language of hieroglyphics, it denoted nothing so properly as a period, which, after a stated interval of time commensurate with its proper duration, necessarily came to an end; yet only to be renewed, and to begin again, and to proceed in the same manner as before. But it is also to be inferred, even from this most natural explanation of the symbol, according to Horapollo, that it was not any kind of restitution which was denoted by it, but a restitution after a *long time*, (an ἀποκατάστασις πολυχρόνιος;) and therefore that, as the type of a period, the Phœnix was not the type of one of short duration, but of something considerable of its kind.

Accordingly we find that, even on grammatical and etymological principles, this interpretation of the symbol is confirmed by the meaning of the word. It appears to be agreed among those who are best acquainted both with the ancient language of Egypt and with the modern Coptic, that this word Phœnix, which has come down to us in the form of the Greek Φοῖνιξ, and so far identical with the name of the palm tree in that language, is in reality a native Egyptian word; but a compound one; consisting of two parts; one of them the definite article in the ancient Egyptian or modern Coptic, *pi* or *phe*, the other, the Egyptian or Coptic term for an *age* or a *period*, *enec*: both together making up the compound word *Pi-enec* or *Phenec*<sup>r</sup>; which in Greek was easily confounded with Φοῖνιξ a palm tree; but in its own language really meant nothing but “the age,” “the period,” “the cycle;” yet, as used with the article and absolutely, the age, the period, the cycle, κατ’ ἐξοχήν.

<sup>r</sup> Sir Gardiner Wilkinson, Second Series, ii. xiv. 228.

## CHAPTER II.

*On the epoch of the Phœnix period; and on the method of arriving at it.*

---

SECTION I.—*On the different measures assigned to the Phœnix period.*

THE proper sense of this word Phœnix then at first being that of “the period,” and the proper idea intended to be conveyed by it being always that of “some period;” the next question is what was the measure of this period? what was the length assigned it at first? and in what manner is it found to be afterwards represented? and whether uniformly so, or not. The answers to these questions in general are returned by the testimonies collected above; which are not indeed all that might have been produced to the same effect, but, if we are not mistaken, are all for which we have any occasion at present, and in answer to such questions as these.

Now we find these testimonies agreeing in representing the Phœnix as the type of a period; that is, of some interval of duration supposed to be commensurate with the existence of the bird which they call the Phœnix, and which they describe in that capacity; of some interval which began with the existence of the Phœnix, and ended with that existence, and lasted meanwhile as long as that existence itself. This is sufficient to identify the Phœnix with some proper period or other: and as all our authorities concur in connecting its existence with a period of this kind, we may conclude that this was the relation in which it had been traditionally handed down, as the type and representative of some interval of duration with which it was indissolubly connected. We have seen that this explanation of the symbol is confirmed by the proper meaning of the name: and it is evidently the only one which is calculated to account for the most characteristic and peculiar of all the circumstances in the history of the bird itself on which our testimonies insist; its being singular of its kind—that there was always *one* Phœnix and

somewhere; but that there were never two, and at the same time, any where. In a succession of periods there never can be more than one which is in existence and going on at a given time: and yet in such a succession there never can be wanting a proper period at the proper time.

But with regard to the actual measure of the period thus supposed to be represented by the Phoenix; though we do not find our authorities agreeing to define it alike, yet among the testimonies produced above we find no measure assigned it, *de facto*, but one of these six: the period of 500 years, the period of 509 years, the period of 540 years, the period of 1000 years, the period of 1461 years, and the period of 7006 years: and though there are various readings of the text in some of these instances, which might render these numbers questionable, we may leave them out of consideration at present, and assume that the readings in each instance are genuine.

i. Among these different periods we will begin with the longest, the period of 7006 years. The only authority produced for this statement *supra* is Tzetzes, the author of the Chiliads, whose own time seems to have been the twelfth century of the Christian æra; or at the utmost, Chæremon, the Egyptian hierogrammateus, from whom he professed to take it. And though this Chæremon is older than Porphyry<sup>f</sup>, (that is than the second or third century of the Christian æra,) and older than Josephus, who probably quotes the same writer also<sup>g</sup>; this is no proof of his antiquity, or that he might not be comparatively modern. Strabo has mentioned a Chæremon of Alexandria, a contemporary of Ælius Gallus, the Roman præfect of Egypt, and of himself, but only as an ignorant and vainglorious pretender to knowledge and information which he did not possess<sup>h</sup>; and Suidas has mentioned another, the author of a work upon hieroglyphics; but he does not specify his age. It is self-evident that neither Tzetzes nor Chæremon in point of antiquity would be competent to decide a question like this, of the first and

<sup>f</sup> Eusebius, Præp. Evangelica, iii. 4. § 1. 197: v. 10. § 5. 421. Porphyry, Epistola ad Anebonem, (cf. Iamblichus, De Mysteriis.) Cf. also Porphyry, De

Abstinentia, iv. 6-8.

<sup>g</sup> Contra Apion. i. 32, 33.

<sup>h</sup> Lib. xvii. i.



proper measure of the Phœnix period; especially in opposition to older testimony, and testimony uniformly to the same effect. This period of 7006 years is confuted by its own magnitude: for if it was really the measure of the Phœnix cycle from the first, such a phenomenon as the re-appearance of the Phœnix (that is, of the actual termination even of the first such cycle) has yet to be witnessed. It cannot yet have happened since the beginning of things. We may dismiss this period therefore, as the least authentic of all; that is, as the least entitled to be considered the traditionary measure of the Phœnix cycle: though in what manner even this might admit of being explained and accounted for, is another question.

ii. The next measure of the period, in point of magnitude, is that of 1461 years; the fact of which we learn from Tacitus. We have already explained that this is the proper measure of the Sothiacal period; 1461 years of its own æra or its own notation, and 1460 of the mean Julian. Unless therefore the Phœnix period of the Egyptians was the same thing as the Sothiacal, only under a different name, this period of 1461 years, proper to the latter, never could have been the true measure of the former from the first. Nor can there be any doubt that the Phœnix period, in its first and proper meaning, was a totally different thing from the Sothiacal. This measure of the period therefore must be altogether set aside at present, as utterly inapplicable to it at first; though whether even this might not come in the course of time to be mixed up with the true period, and possibly even to be confounded with it, is another question.

iii. The next greatest measure of the period, which we find upon record, is that of 1000 years. It is observable however that it begins to appear only in writers of comparatively late date. The first of our authorities who mentions it is Martial, in the reign of Domitian, and towards the end of the first century of the Christian æra; the next the author of the poem ascribed to Lactantius, whose age was the beginning of the fourth century; the next to him Ausonius and Claudian, both at the end of this century, or at the beginning of the next; and lastly Nonnus of Panopolis, author of the *Dionysiaca*, in the fifth or sixth. No one of these is proper to be

appealed to upon a question which goes so far back into antiquity as this of the origin of the Phoenix period. And yet it could not be assumed for certain that even the measure assigned in these instances was really a different thing from the genuine measure of antiquity. For if that measure was the period of 500 years; this of 1000 years is only that period doubled: and nothing would be easier than to derive this period from the former, either by doubling it at once, or by confounding two successive periods of the legitimate length with one; or by dividing a given interval of time between successive manifestations of the Phoenix, so as to give 1000 years to each. We must dismiss this measure then as well as the preceding: though in what manner even this might have been obtained from the genuine measure, and probably was so, is a question which we reserve for the present.

iv. The measures remaining are those of 540, 509, and 500 years respectively: and these differ so little from each other, as thus stated, (the numbers which express them in each instance being assumed to be genuine,) that every one must admit it to be both possible and probable that originally they may have been the same.

The first of these is Solinus' period of 540 years. It is observable that though his own account of the Phoenix, when compared with Pliny's, shews plainly that he borrowed other particulars of that account from Pliny, yet he did not borrow this period from him; for it does not occur in Pliny. It is observable too that he proposes it as something of which there could be no doubt; something of which it might be said, *Probatum erat*: the measure of the period thus assigned, that is, the length of the existence of the Phoenix itself, had been attested and confirmed by experience and by the matter of fact. Nor does there seem to be any reason to doubt of the soundness of his numbers, 540. The reading in the first of these instances is confirmed by that in the second; where the same number of 540 is opposed to the measure of the annus magnus 12,954. We cannot therefore assume that this was not an actual measure of the Phoenix period, which Solinus had met with somewhere or other; confirmed in his opinion too by sufficient proofs of its truth:

nor could we venture to set this aside at once, as we have done the other three; though in what manner it is to be explained remains yet to be seen.

v. The period of 509 years rests on the authority of the Roman senator Manilius, mentioned indeed in this instance by Pliny; but of whom nothing is known from any other quarter. And as his age appears to have been specified by himself, U. C. 657 B. C. 97; this is sufficient to distinguish him from Manilius, author of the *Astronomica*, who was writing that work either in or after A. D. 9<sup>u</sup>: and who seems to be described by Pliny<sup>w</sup>, under the name of Manilius Antiochus, and sister's son (*consobrinus*, or cousin) of P. Mimus, commonly called P. Syrus.

But whosoever this Manilius was, it is evident that Pliny gives him the highest character for learning and erudition, self-acquired too, or *doctore nullo*; and especially on this question of the history of the Phœnix, to which he appears to have paid particular attention: so much so, that Pliny must have thought it superfluous to quote any authority but his concerning it—though he could not have been ignorant of the existence of other accounts of the same thing which differed from his. Now as Pliny the Elder was a man of good sense and good judgment, and of multifarious reading and information himself, we should not be justified in suspecting the truth of the character which he has given of this writer, and on this one point. We shall see hereafter that no testimony of antiquity has come nearer to the truth than his. At present however we receive his Phœnix period as only one among others, which have been traditionally handed down; and such as it stands in his text, at 509 years: though that may not be absolutely correct. And it differs so little in that form from the period of 500 years—that it might well be considered *a priori* only an accidental variation from it.

vi. The period of 500 years alone remains: and this is the period assigned by Herodotus, and apparently by Hecataeus, and by Pythagoras, before Herodotus; that is, by the oldest of all our authorities, and from information received concerning it in Egypt itself. It is the period so often and so

<sup>u</sup> *Astronomica*, i. 896.

<sup>w</sup> H. N. xxxv. 58. Cf. *Thesaurus*

*Temporum*, *Chronicon* of Jerome, ad ann. 1974. *Olymp.* 184. 2.

generally assigned that, whatsoever exceptions there may be to the contrary, every one must acquiesce in the reasonableness of Tacitus' observation, *Maxime vulgatum quingentorum spatium*. If there was any period more generally assigned and more generally received than another, it was this of 500 years. If the true measure of the period therefore was ever allowed by the Egyptians to transpire, this must have been the form in which it got abroad. We assume then that if there was such a thing, from the first, as a traditionary measure of the period, it was this term of 500 years: and we shall find this assumption confirmed hereafter by the matter of fact. We will add only, at present, that, whether these were 500 equable years or 500 Julian, it would make no difference to the nominal length of the period. We believe however that in the original conception of the period, and in its practical application and measurement, it was intended to be reckoned, and it was actually reckoned, in mean Julian years, or at least in mean natural.

SECTION II.—*On the number of Phœnix periods which are on record.*

The conclusion at which we have just arrived, that three measures of the Phœnix period only are assignable from testimony, entitled *a priori* to any degree of authority, that of 540, that of 509, and that of 500 years respectively; that even these three differ so little that probably all may be ultimately the same; that among these that which has every prescription in its favour, as the original and traditionary measure of the period, is the term of 500 years; this conclusion, we say, is of great importance. It is the first step necessary to the discovery of the epoch of the period; though not sufficient for that purpose merely of itself, and without additional data, not yet supplied.

The length of the Phœnix period might be known; but unless the number of periods, which actually elapsed and are actually on record, were also known, we should not be enabled to go back to the origin of all merely by knowing the length of each. But if both the length of each period and the number of such periods were known, nothing would be easier than to ascend to the epoch of all. The next question



then, in the order of the present inquiry, would seem to be that of the *number* of Phœnix periods: and whether any thing is known or can be known at present of the absolute number of such periods from the number which are actually on record.

Now the number of Phœnix periods is virtually the same thing as the number of the appearances of the Phœnix: for the Phœnix was never seen except at the end or at the beginning of a period. And though on this principle there might be two recorded appearances of a Phœnix in connection with only one period, (one at the beginning and the other at the end;) still, as a general rule, we might safely undertake to say that, did we know the actual number of recorded appearances of the Phœnix, we should also know the actual number of Phœnix periods.

The author of the poem ascribed to Lactantius gave us to understand that every appearance was registered by the priests on stone, (that is, in the hieroglyphical character, and in the usual manner of the hieroglyphical sculpturings on stone,) at the time when it took place. There is nothing improbable in that statement. On the contrary, we may take it for granted that every such appearance both would be recorded, (and in this manner too,) and actually was so, in its proper order of time; by these appearances only being understood the proper beginning and proper ending of every Phœnix period itself: and that consequently every sculpture of a Phœnix, which is still discoverable on the monuments of ancient Egypt, might be intended, and probably was so, of the sign and seal of some such manifestation; that is, of the end of one period and of the beginning of another.

Such representations are still to be met with in Egypt; and, according to the writers on these subjects<sup>x</sup>, as early as the monuments supposed to have been erected about the commencement of the 18th dynasty; which dynasty in the scheme and arrangement of Böckhy began B. C. 1655 and ended B. C. 1345. But the monumental Phœnix (the figure at least which is considered to represent that bird on the sculptures at present) is a very different thing from the

<sup>x</sup> Sir G. Wilkinson, Second Series,  
i. xiii. 306.

<sup>y</sup> Nolan's Egyptian Chronology,  
App. iii.

traditionary Phœnix, handed down in the descriptions produced above, beginning with that of Herodotus.

Sir Gardiner Wilkinson's account of the monumental Phœnix is the following<sup>z</sup>: "The Egyptian Phœnix is represented under the form of a bird, with wings partly raised, and seated upon its open claws\*, having at the back of its head a small tuft of feathers similar to that of the crested plover so common in Egypt: and in front it raises two human arms as if in the attitude of prayer."

... "They sometimes represent the Phœnix under the form of a man† with wings in the same attitude of prayer, and bearing the tuft of feathers on his head, accompanied also by a star, which . . . seems to have been connected with the idea of adoration‡."

What imagination, we may ask, could possibly recognise, in this description, that representation of the Phœnix, which the ancients have left on record, beginning with Herodotus? the picture which they have drawn (all in the same colours, only some more circumstantially than others) of the bird outvying the particoloured hues of the rainbow; so curiously decked and set off in red, and flame, and purple, and emerald; the paragon of birds themselves both for size and for beauty? Are we then to suppose that the moderns have mistaken the symbol of the Phœnix on the sculptures at present? or that the ancients, beginning with Herodotus, were mistaken in what they supposed to be the Phœnix? or lastly that the priests purposely pointed out to the strangers

\* To seem to be rising, yet on its own claws, and at the same time to be fluttering, and expanding its wings, is an imitation of the natural gesture by which a bird expresses the emotion of joy. This representation appears to have been intended to imply that the Phœnix, coming on such occasions into the presence of its lord and master the Sun, is saluting him with this natural expression of its feelings: adoring him, and at the same time testifying his joy.

† The Phœnix in the form of a man seems to have been intended as the type of the human soul.

‡ The meaning of this symbol appears to us to be mistaken. It is rather a type of *singularity*. Every star is singular of its kind: and so was every Phœnix.

<sup>z</sup> Second Series, loco cit. p. 304. Cf. the Chevalier Bunsen, App. ii. A. Ideographics, No. 323, 324 (p. 518).

who came among them some other picture as that of the Phœnix, and not what was really so?

It is difficult to answer these questions: and yet one of these hypotheses we must adopt. We will observe that pictures or descriptions of a bird, answering to the Phœnix, and no doubt intended of the Phœnix, are found in India and China also; and very similar too to those produced above: and as the first idea of these also must have come from Egypt, we must conclude that there was a standing pictorial representation of some bird even in Egypt, which was uniformly pointed out to the strangers who came there as the figure of the Phœnix, whether it was so or not. And such representations are even yet discoverable on the monuments, of birds unlike anything of their own kind which ever had a real existence; but which both in size and shape and in colour and decoration would correspond to the descriptions which the ancients have left of the Phœnix.

The Egyptians might have their reasons for passing these off as the Phœnix to any who came among them; and one reason might be that, while they had abundance of objects of this kind to exhibit, the case must have been very different with the Phœnix. If they really kept an account of the Phœnix periods, registered on stone and attested by sculptures of the Phœnix itself, but only in the order of their occurrence; it is very conceivable that they would never make the real Phœnix known to the strangers who visited Egypt: they would always point to something else in its stead. These sculptured attestations of distinct Phœnix periods, strictly speaking, would not be visible any where in Egypt except at Heliopolis: the account of the Phœnix period at least could be kept only there; nor even there except in conformity to the truth. No period could be registered even there, except in its proper order of time. We are well assured that, if the Egyptians had kept this account correctly down to the time of Herodotus, they could not possibly have had more than two or at the utmost three such sculptured attestations of a fresh period and of a fresh Phœnix to exhibit to him: and what a sorry figure two or even three representations of this kind (had those been all they had to shew) must have cut in comparison of the prodigious antiquity to which

they laid claim, and of the length of time for which they pretended to have had the period among them, no one requires to be told.

But the Phœnix cycle, from the nature of the case, if kept and reckoned at all, must be regularly so. It was one of those things with which the priests themselves, until after a time at least, did not consider themselves at liberty to tamper; and we are strongly inclined to believe they never did tamper with it before a certain time, nor ever allowed the representations of the Phœnix to be multiplied *ad libitum*, nor repeated any where except at Heliopolis, while the period itself retained its credit among them, and continued to be used for its proper purpose and in the same way as at first. And it would be a necessary consequence of this reserve, that the true figure of the Phœnix would never be suffered to transpire. The period might be made known, and abundance of supposed appearances of the Phœnix might be pointed out, as if in attestation of it. But the true figure of the Phœnix it is certain could not have been made known, for it has been no where left on record; and until the moderns visited Egypt themselves, and explored and examined every part of the monuments with their own eyes, no one even among them ever had a correct idea of it. It is clear therefore that this was one of the profoundest secrets of the priests, and one which never escaped them. The time did arrive at last, when they discarded the old and correct theory of their Phœnix period, and adopted a new and an erroneous one in its stead: and from this time too they began to multiply representations of the Phœnix, in connection with fictitious periods, either such as were supposed to be past, and on the principle of the *reditus retro*, or such as were still to come. Yet even then, as to the true figure of the Phœnix, and to its true representative in the sculptures, they do not appear to have become in the slightest degree more communicative to strangers than they were before.

Yet these true representations of the Phœnix are not common on the monuments at present. The Phœnix is one of the least familiar of the delineations which occur upon them. We have searched through the great work of Champollion Le Jeune, entitled, “*Monumens de l'Égypte et de la Nubie*,”



published in 1835 under the auspices of the French government, and have met with the Phœnix in it only *twice*: once, in the representations of the great temple at Philæ, in one of which <sup>a</sup>, on the pedestal of a statue of Thoth <sup>b</sup>, there are *seven* such figures as sir G. Wilkinson describes, each accompanied with a star, and having its hands lifted up, as if in the act of prayer: and again, in another, on the pedestal of a statue marked No. 4 <sup>c</sup>, where there are *eight* Phœnixes, each however without the accompaniment of the star also. The number of these Phœnixes in each instance is sufficient to prove that, as historical attestations of distinct periods, they are of no value whatsoever: for seven such periods would go back 3000 years at least, and eight 3500. They must be set down to the same category as the 7006 years, constituting the one Phœnix period of Chæremon.

It is a curious question however, and one which we recommend to the consideration of the students of the monumental antiquities of Egypt, whether more than seven or eight Phœnixes are any where discoverable at once. We should be willing to concede that, according to the theory and doctrine of the fable itself, each of these Phœnixes must be intended as the representative of a distinct cycle: but we have reasons for believing that the Egyptians purposely limited their utmost number even in that case to eight: and we much doubt whether more than eight can be found any where in Egypt at once. In the Egyptian Antiquities of the British Museum, we have met with only one sculptural representation of this kind; viz. on the pedestal of a statue of Amoun-Ra <sup>d</sup>, exhibited in the character of Harsaphes, and though properly a Theban deity, yet still a type of the sun. On this pedestal are two Phœnixes, kneeling and adoring; but only *two*: a modest number, in comparison of the eight at Philæ. In the fact of these two, but no more, there may be an historical propriety, which will appear by and by: for two Phœnixes could not imply more than 1000 years; and this Theban type of the sun, if we are not mistaken, and the third Phœnix period, came into existence together, or nearly so.

In these instances, the attitude in which the Phœnix is

<sup>a</sup> Tome i. pl. xci. ter.

<sup>b</sup> Ibid. No. 3.

<sup>c</sup> Ibid. No. 4.

<sup>d</sup> Part i. p. 6. fig. 4.

exhibited is such as sir G. Wilkinson described, that of prayer or adoration, with the hands, instead of claws, lifted up towards the sun; and this in our opinion is a strong internal evidence that they were all intended to represent the close of a cycle, and the last act of the life of the Phœnix, the proper type of the cycle; which, according to Horapollo, was terminated in this way, and almost in the act of adoring the sun: for which reason he supposes it to take place at sunrise, and with the first appearance of the sun. In this one circumstance however the accuracy of his account may be suspected. We shall see hereafter that the Phœnix period began and ended at *noon*; and the end of the period being the proper termination of the existence of the type of the period, in the original conception and original representation of the fable it must have been supposed to die at *noon*, at the culminating point, and in the midst of the full blaze, of the solar light; not with the beginning of day, nor even with the first appearance of the sun itself but only on the horizon.

### SECTION III.—*On the historical appearances of the Phœnix.*

The pretended appearance of a Phœnix A.D. 34, according to Tacitus, led him to inquire into the accounts of such appearances historically on record: and he has left us the result of these inquiries in the passage already produced among our other testimonies<sup>e</sup>.

It does not appear from this account that he had been able to find mention in history of more than three appearances, before this supposed one in the reign of Tiberius: the third and most recent in the reign of the Third Ptolemy, son of Ptolemy Philadelphus and grandson of Ptolemy Lagi or Soter, commonly known by the name of Ptolemy Euergetes I: the one before that, in the reign of a king whom he calls Amasis, and by whom we must suppose him to mean the only Egyptian king familiarly known to the Greeks and Romans under any such name, the Amasis of Herodotus: the next before that, and the first of all, in the reign of Sesos-tris: by whom, in like manner, he could mean none but the

<sup>e</sup> Supra, p. 210. art. xvii.

king as well known by that name to the ancients as to the moderns.

That these three appearances could not have stood at equal distances of time asunder, or at any such distance asunder from one another as would answer to any of the reputed measures of the Phœnix period yet produced, is very evident to ourselves; and probably was just as much so to Tacitus. But this is not the point with which we are concerned at present. We are not inquiring into the *dates* of these appearances, but into the *number*; and into the individual distinctness of any one among them from the rest. Now if Ptolemy Euergetes I. was only a different person from Amasis, and Amasis was only a different person from Sesostris, yet tradition or historical testimony connected the appearance of the Phœnix with none but some one of these three; we can come to no other conclusion with respect to such appearances in general, than this: That, whensoever these three happened, and at what distance of time soever asunder, there were no more than these three on record: tradition or historical testimony had perpetuated the fact of no more than these three down to the time of Tiberius; the last comparatively of recent occurrence, in the reign of Ptolemy Euergetes I.

This reign, according to the canon of Ptolemy, began Nabon. 502 B. C. 247, and ended Nabon. 527 B. C. 222: and this date of the close of this reign is confirmed by Polybius<sup>f</sup>; from whom we further collect that it happened in the latter half of that year. If then there was any foundation in fact for this statement of the appearance of a Phœnix in this reign, it is manifest it could not have been earlier than B. C. 247, nor later than B. C. 222. Now three appearances, each at the distance of an integral period of 500 years asunder, would require 1500 years in all: on which principle, the epoch of the first of these appearances, 1500 years before B. C. 247, must have been B. C. 1747, and 1500 years before B. C. 222 must have been B. C. 1722.

It appeared from Ezechiel Tragicuss that a Phœnix was visible at the Exodus; for though he did not expressly call the bird there described the Phœnix, there can be no doubt

<sup>f</sup> ii. 71. 65—69. 70.

<sup>g</sup> Supra, art. x. p. 205.

that he meant the Phoenix in that description, and no other bird. Now, according to the fable, the Phoenix was never visible except at the end or at the beginning of a cycle: and it is clear from the context in this instance that the Phoenix as the youthful representative of an incipient cycle, not the aged and effete representative of an expiring one, must have been what the description had in view. On this principle, Ezechiel's date of the Exodus must have been also the date of a Phoenix period: so that did we know the former we should know the latter; according to him at least. We do not indeed know his date of the Exodus. But it is very probable it did not differ materially from that of Clemens Alexandrinus<sup>h</sup>, B. C. 1666: and this approaches sufficiently near to B. C. 1747 or 1722, especially to the latter, to authorize the inference, that, if this author supposed any Phoenix period coincident with the date of the Exodus, it must have been the first of which any thing was known historically: and therefore that the epoch of the Phoenix period, and the date of the Exodus from Egypt, in his opinion, were much the same.

It has also been seen from Tacitus<sup>i</sup> that one of the measures of the Phoenix period was 1461 years, that is, the proper measure of the Sothiacal period. The most probable explanation of this supposition, in our opinion, is the fact that in Tacitus' time the first Sothiacal period was fast approaching to its close: and the Phoenix period was known or believed to go back three periods before his time also, but only three; consequently to near the epoch of the Sothiacal period: for three Phoenix periods = 1500 years, and one Sothiacal period = 1460 years; and there is only 40 years difference between them\*. That the epoch of the Sothiacal period and that of the Phoenix periods were actually connected after his time, if they had not been so before, may be inferred from the following fact. There was another supposed appearance of a Phoenix in the reign of Claudius:

\* And this is probably the best explanation of one of the various readings of the length of the period, in the passage produced from Pliny (Art. xx. p. 211) that of 40 years: which would otherwise be the most difficult of all to account for on any rational principle. It was probably the difference of three Phoenix periods, (all that were known of historically,) and the Sothiacal period.

<sup>h</sup> Supra, Diss. xiv. ch. ii. sect. 11. p. 71.

<sup>i</sup> Supra, art. xvii. p. 210.



the date of which being uniformly represented as that of his censorship must have been A. D. 47. This appearance was mentioned by Dexippus: who flourished and wrote his history in the reign of the second Claudius, A. D. 269; 130 years after the termination of the first Sothiacal period: and according to both Syncellus and Suidas<sup>k</sup>, each of whom refers to this part of his history, he made this appearance 654 years later than the one last before it. In these numbers we have always suspected the existence of an inveterate error, arising from the confusion of  $\text{XII}\Delta$  and  $\text{XN}\Delta$ : 684 and 654: and that the true reading was 684. Now  $684 \times 2 = 1368$ : from which if we subtract 46, the remainder is 1322. So that on this principle, if the date of the first appearance of a Phoenix on record, according to the apprehension of Dexippus, was the received date of the Sothiacal period, B. C. 1322; that of the second, 684 years after, would be B. C. 638; and that of the third A. D. 47, in the reign of Claudius.

If this explanation is correct, it must be clear from it that the epoch of the Sothiacal period must have been considered the epoch of a Phoenix period; and the epoch of the first of all, if there were only three on record; or the epoch of one at least, even if there were more than three on record. And this too would be another step in advance towards the discovery of the true epoch of the period itself. If we go back one period, beyond the commonly received date of the Sothiacal period, B. C. 1322, it brings us to B. C. 1822; if one period beyond that of the true, B. C. 1350, it brings us to B. C. 1850: and one of these, on this principle, must have been the epoch of a Phoenix cycle; the first which could have been known to history, and therefore the first of all\*.

\* The Roman emperor Heliogabalus is said to have formed a desire to serve up the Phoenix at one of his banquets: and to have promised a thousand pounds of gold to any one who would bring him a living specimen of that bird<sup>l</sup>: though it does not appear that even this tempting offer procured him the gratification of his wish. We may conjecture that, according to some calculations of the period, a Phoenix was expected to appear in his reign. The incident to which we allude must have happened some time between his arrival at Rome, about midsummer, A. D. 219 and

<sup>k</sup> Supra, art. xviii. p. 211.

<sup>l</sup> Lampridius, Vita, 23. Historiæ Aug. SS.

SECTION IV.—*On the recovery of the true epoch of the Phœnix period in general, through the Phœnix period of Solinus, 540 years.*

It is much to be regretted that we have no account any where in history, except in this passage of Tacitus, of the supposed appearance in the reign of Ptolemy Euergetes I. His reign however was only 25 years long; and therefore there are but 25 years in history altogether, in one of which it must have fallen out: and we are strongly inclined to believe that the actual year in his reign, of which this fact was recorded, was the 21st, B. C. 227.

For we observe that Tacitus remarks there were less than 250 years between this Ptolemy and Tiberius. Now this is so different from the actual truth, that we must take the liberty of supposing he wrote 260 years, not 250. If you reckon from the first year of this Ptolemy, B. C. 247, to the first year of Tiberius, A. D. 14, the interval is 260 years exactly; ten years more than 250. If you reckon from the last year of the former, B. C. 222, to the last of the latter, A. D. 36, the interval is 257 years; three years less than 260, but seven years more than 250. We must conclude then that, if Tacitus was not very ignorant of the truth in this respect, he actually made the interval 260 years, not 250. But why should he specify 260 years as the interval between this Ptolemy and Tiberius at all? We suspect, because it was the exact interval between the supposed appearance of the Phœnix in the reign of Tiberius, and the actual recorded appearance of the Phœnix in the reign of this Ptolemy. Now the date of the former, according to Tacitus, was A. D. 34. Subtract 33 then from 260, and you get the date of the appearance in the reign of Ptolemy, B. C. 227.

his death, March 11 A. D. 222. We may assume the middle year, A. D. 220. From B. C. 1322 to A. D. 220, the interval was 1541 years: and as we find in the various readings in Pliny<sup>m</sup> for the length of the period, 511 among others; this is sufficient to shew that a period (the third in order from B. C. 1322) might be supposed to be coming to an end, in the time of this emperor: which might give occasion to the absurd desire conceived by him of securing it when it should appear, and serving it up at his table.

<sup>m</sup> Supra, Art. xx. p. 211.

Let us then proceed to consider the period of Solinus, 540 years; and what use is to be made of that. We have already observed that he did not take this period from Pliny; and that he spoke of it as a period which had been verified in some manner or other, and found to answer. Now we have ascertained thus much concerning these periods in general, and concerning the particular Phœnixes connected with each; that tradition or history knew of no more than three actual recorded appearances of the latter, including the last in the reign of Ptolemy Euergetes I: and therefore of no more than three periods. And though there might be pretended appearances of the Phœnix later than this last, and actually on record; it is manifest that there was none which could be depended on, none which could be considered genuine and authentic of its kind, later than that.

Let us assume then that the recorded date of this last appearance was B. C. 227; and that the true measure of the period was that of Solinus, 540 years. Three periods of this magnitude exactly would amount to 1620 years. On this principle, if we go back three periods, with this measure, beyond B. C. 227, we shall come to B. C. 1847, as the common epoch of all, traced back from the recorded date of the last appearance which could be considered genuine, according to one and the same law. Now it will be seen hereafter that this date, B. C. 1847, is actually the epoch of the entire decursus of Phœnix periods, known to the Egyptians from first to last: which being the case, it both confirms the date of the appearance in the reign of Ptolemy Euergetes I, B. C. 227, obtained from Tacitus, and explains the origin of Solinus' measure of the period itself, though different from every other on record. It must have been determined by taking the interval between B. C. 1847 and B. C. 227, 1620 years, and distributing it equally among the three periods of which any thing was supposed to be known from the epoch down to the 21st of Ptolemy the IIIId. It accounts also for the confident manner in which Solinus expressed himself about this period in particular. If there were really only three cycles between B. C. 1847 and B. C. 227—yet each of the same length, he might well say the duration of each was 540

years, and had been ascertained to be so by such proofs as left no doubt of the fact.

SECTION V.—*Recovery of the epoch of the period through the period of Manilius.*

We shall next proceed to consider the measure of the period ascribed to Manilius. It is first of all to be observed that the readings of the numbers of this period in the text of Pliny are not uniform. We shall not enter upon the critical examination of these different readings: but we shall take that which is proposed in the text of Harduin as the best authenticated, 509.

Now it appears from Pliny's account of this author's date of his own time, that he was writing in the consular year of P. Licinius and Cn. Cornelius: and not only the *Fasti Consulares*, adapted to the Varronian epoch *Urbis Conditiæ*, but Pliny himself<sup>o</sup> shews that these two were consuls U. C. 657 of Varro, B. C. 97. It appears too that he reckoned this consular year to be the 215th year of the *Phoenix* period which was still current and still incomplete in his own time. But it is here to be observed, that there is a various reading in this instance also; viz. that of the 225th year of the period in question instead of the 215th. Now B. C. 97 being assumed to be the 215th year of the period, the first year must have been B. C. 311: B. C. 97 being supposed the 225th year, on the same principle the first must have been B. C. 321.

With respect to the current year of the period in question, in which Manilius was writing, it does not appear that there is any variation in the readings except these two: and therefore these are all the variations of that kind between which we have to choose; the 215th year of the period or the 225th. The length of the period, according to Manilius, will be the same in either case; and if it is rightly represented by the reading in the text, it will be in either case 509. Now  $509 \times 3 = 1527$ . If then we go back 1527 years from B. C. 311, we come to B. C. 1838: and though this approximates closely to the date of B. C. 1847, already determined from the period of Solinus as the epoch of the *Phoenix* periods, it is not the same with it: and this differ-



ence is calculated to throw doubts either on the truth of the conclusion just established, or on the truth of the reading in the text of Pliny, the 215th year of the current period in the time of Manilius; from which it has been directly obtained.

Let us assume then the reading of the 225th year of the period, for this year; and the first year of the period consequently B. C. 321. If we go back 1527 years from B. C. 321, we come to B. C. 1848: and this differs so little from B. C. 1847, that it may well be considered the same: and it is obvious it would be altogether the same, if B. C. 1848 in one of these dates were referred to the end of that year, and B. C. 1847 in the other were referred to the beginning of that; yet both to the first year of the same period or cycle. It must be admitted that this coincidence is very remarkable: and that though Manilius is a totally different authority from Solinus, and his Phoenix period a totally different one from that of Solinus, yet that it should conduct us to the same epoch of the period in general. One of these conclusions, under such circumstances, ought to be considered to confirm the other. If there is a difference of a year between them, in a case like this it is easy to see it might be, and probably was, the effect of accident. But the true explanation of this difference, slight as it seems, serves only to render the coincidence still more striking. We have already explained<sup>p</sup> that the epoch of the Phoenix period was the epoch also of the first Julian calendar ever introduced among the Egyptians. The period, as we shall see, was attached to the vernal equinox; but this Julian calendar to the date of the civil or equable calendar for the time being; which was falling at that time in the opposite quarter of the natural year. The first of the cyclical Thoth, æra cyc. 2159, was falling Nov. 18 at midnight B. C. 1848. It is manifest therefore that the Phoenix period had from the first a double epoch; a chronological one, Nov. 18, B. C. 1848, and an astronomical one, the vernal equinox, B. C. 1847: and yet that its first year, according to one, was absolutely the same with its first, according to the other; subject to this distinction merely\*.

\* The confusion of the 225th year of the fourth Phoenix period accord-

p Supra, Diss. vii. ch. ii. sect. iii. vol. i. 552.

We shall now proceed to substantiate this date of the period, so obtained from Manilius, by other circumstantial criteria furnished by him also. For this purpose we must again refer to the words of his testimony, as reported by Pliny: "*Quum hujus alitis vita magni conversionem anni fieri prodidit idem Manilius: iterumque significationes tempestatum et siderum easdem reverti. hoc autem circa meridiem incipere, quo die signum Arietis sol intraverit.*" We learn two very important facts from this statement: i. That the Phœnix period, according to Manilius, *began and ended at noon* on the proper day: ii. That it began and ended at noon not on any day, but on the day on which the sun entered Aries; that is, on the day of the vernal equinox. It does not appear that it began or ended, according to him, at the moment of the vernal equinox; only at noon, on the day of the vernal equinox. Now this is an important distinction. The point of noon is a fixed thing: and yet a cycle might always begin or end at the point of noon. The point of the vernal equinox is a fixed thing in itself also; but relatively to any other fixed point, like the point of noon, it is variable. It could not always coincide with the point of noon; though it might do so under certain circumstances and in a particular instance; but if it had done so once, under certain circumstances; it could not do so again, under the same, for an indefinite length of time. Yet the vernal equinox must always fall out on some day, and either at the point of noon on that day, or at some time before or after the point of noon on that day. It is clear then that it must have been an impossible rule for any cycle always to begin or to end at noon, and always at the point of the vernal equinox; but a very possible rule for a given cycle always to begin or to end at the point of noon, and always on the day of the vernal equinox.

ing to Manilius with the 215th, in the text of Pliny, is easily explained by the similarity of ccxxv in the Roman notation to ccxv. But it might have something to do also with the fact just pointed out, that the proper chronological epoch of the period was November 18 B. C. 1848. A celebrated æra of antiquity, the *Æra Seleucidarum*, and another, the *Æra Græcorum*, were both attached to the same season of the natural year, and almost to the same Julian date; the former B. C. 312, the latter B. C. 311. The 215th year of Manilius' fourth period being supposed to coincide with B. C. 97, the first year must have coincided either with B. C. 312, or with B. C. 311: that is, with the epoch of one of these æras.

It seems then that the rule of the Phoenix cycle, from the time of its institution downwards, *de facto* was twofold. It must be reckoned from noon; and it must be reckoned from the day of the vernal equinox. It was connected with a proper noctidiurnal cycle from the first, the epoch of which was noon: and it was connected with a proper annual one from the first also, the epoch of which was the point of the vernal equinox. It is manifest that this rule could never be as complete and perfect in practice as in theory, unless both these conditions met together and coincided: and they could not meet together and coincide, unless the epochs of these two cycles met together and coincided also: that is, unless the point of the vernal equinox coincided with the point of noon. Such a coincidence in the nature of things was possible; but from the nature of things also, it must be rare and singular of its kind; and having happened in a given instance it could not happen again under an indefinite length of time. It is manifest too, that the most probable explanation of this peculiar rule of the Phoenix cycle ever after is the fact that this coincidence actually held good at the epoch of the first cycle: and that in the first instance of all both the noctidiurnal cycle and the annual cycle of the period, each reckoned according to its proper rule, actually met together and coincided at the point of noon. Though therefore this could not be necessarily taken for granted merely from the fact of the rule itself, such as it has been made known to us through the testimony of Manilius; yet it must be admitted to be in the highest degree probable: and that consequently, among the other criterions of the true epoch of the Phoenix period, this might be expected to be one; that the mean vernal equinox, at that time, for the proper meridian must have been falling at noon. It may be assumed that this meridian must have been that of the ancient Heliopolis in Egypt: between which and the meridian of our own tables the difference is 15 m. 44 s. We shall confirm this very natural presumption of the state of the case beforehand, and substantiate the date of the epoch which we have already deduced both from the period of Solinus, and from the period of Manilius, if we can shew that the mean vernal equinox for this meridian B. C. 1847 actually fell out almost at noon.

Now from our general tables we have the

			h.	m.	s.
Mean vernal equinox B. C. 1847	..	April 8	12	47	52.8
			—	15	44
At Heliopolis .. .. .		April 8	12	32	8.8

that is, as nearly as possible, at the point of noon.

This year therefore, B. C. 1847, when the mean vernal equinox was thus falling as nearly as possible at noon for the meridian of Heliopolis, was eminently qualified to answer to the character of the epoch, such as we have collected it from the testimony of Manilius. It is self-evident that, according to the rule of the cycle, a cycle which came into existence at this moment could have been attached to no other epoch but April 8, the date of the mean vernal equinox at noon: and if such a cycle, and subject to such a rule, did actually come into existence at this moment, its rule ever after must be such as Manilius has assigned; viz. to bear date from noon, *on* the day of the mean vernal equinox. We say the day of the mean vernal equinox: for we are aware that at this period of time the true equinox was anticipating on the mean; as indeed it had been doing ever since the beginning of the present system of things B. C. 4004, when both the mean and the true coincided: and it may possibly be objected to the calculation just proposed above that we ought to have taken the equation of the centre into account\*. But we

\* We subjoin the calculation of the four ingresses through this whole year, B. C. 1847, for the sake of future reference:

			h.	m.	s.
i. Mean vernal equinox at Heliopolis	..	April 8	12	32	8.8
Equation of the centre	.. .. .	—	1	5	53
True vernal equinox	.. .. .	April 7	6	38	58.2
ii. Mean vernal equinox	.. .. .	April 8	12	32	8.8
One quarter	.. .. .	+	91	7	27
Mean summer solstice	.. .. .	July 8	19	59	21.4
Equation of the centre	.. .. .	+	1	9	56
True summer solstice	.. .. .	July 10	5	56	6.6
iii. Mean vernal equinox	.. .. .	April 8	12	32	8.8
Two quarters	.. .. .	+	182	14	54
Mean autumnal equinox	.. .. .	Oct. 8	3	26	34.0
Equation of the centre	.. .. .	+	1	2	19
True autumnal equinox	.. .. .	Oct. 9	5	46	29.0
iv. Mean vernal equinox	.. .. .	April 8	12	32	8.8
Three quarters	.. .. .	+	273	22	21
Mean winter solstice	.. .. .	Jan. 7	10	53	46.6
Equation of the centre	.. .. .	—	1	17	3
True winter solstice	.. .. .	Jan. 5	17	49	48.7



have seen every reason to be satisfied that the distinction of true but variable and fluctuating motions, and mean and invariable ones, was understood by the ancient Egyptians; and that they knew also that such differences were merely accidental and temporary, or periodical; and that the true standards of reference and standards of measure perpetually were the mean. It will probably appear hereafter that the Phœnix period was of such a nature, that in the theory and praxis of this period mean motions only, as always the same and invariable, could properly be taken into account. The Egyptians therefore might be well aware that the true vernal equinox, B. C. 1847, was anticipating more or less on April 8 at noon; and yet notwithstanding attach the epoch of their Phœnix cycle, in the first instance, to April 8 at noon\*.

In arriving at this conclusion, we believe that we have attained to the true epoch of this celebrated period: and we trust that it will be seen hereafter to be confirmed by proofs, altogether distinct from any thing which has yet been produced. Yet what we have already advanced, to an unprejudiced and impartial consideration, must appear sufficient to establish it. We have obtained this conclusion from Manilius, a totally different authority from Solinus: and we have obtained it from Solinus, a totally different authority from Manilius. The data supplied for this purpose by the former were entirely different from those supplied by the latter, and *vice versa*: yet each have led to the same result. To the application of these data, in either case, nothing was neces-

\* It is necessary however to observe that though the mean vernal equinox, B. C. 1847, for the meridian in question was falling on April 8 almost at mean noon, and therefore the proper date of the annual cycle of the Phœnix period was April 8 at noon; its epoch was assumed *de facto* 24 hours of mean time earlier, April 7 at mean noon. The true vernal equinox at the same time was falling on April 7 too, only a few hours before mean noon. We do not think that this assumption of the epoch was determined by any regard to the true equinox, for the time being, and to its distinction from the mean; but simply out of deference to the proper rule of the noctidiurnal cycle among the Egyptians, which was such that whatsoever the epoch of the annual cycle, assumed for the Phœnix period, that of the noctidiurnal, assumed for it also, must be 24 hours earlier: so that the former being April 8 at mean noon, the latter was fixed to April 7 at mean noon.

sary beforehand, except the knowledge of a fact, which we collected from an altogether different source, the testimony of Tacitus: viz. that, whatsoever the original epoch of the Phoenix period in either instance, the number of such periods between that epoch and their own time, known either to Solinus or to Manilius, could have been neither more nor less than three. It is evident that Solinus' period was obtained by dividing the number of years between B.C. 1847 and B. C. 227, by three: and Manilius' by dividing the number between B. C. 1848 and B. C. 321 by three also: the former of which gave at once the measure of 540 years, and the latter that of 509 years. And the true epoch of the period being B. C. 1847, and the true measure of the period 500 years, and the number of actual Phoenix periods which had elapsed from the epoch being only three, and three periods of the legitimate length being equal to 1500 years, as three of Solinus' were to 1620 years, and three of Manilius' to 1527; it is manifest that the measure of the period determined by either from such data, for himself, could not differ materially from the true measure, though it must differ from it to a certain extent.

We shall sum up our proofs then of the truth of this epoch at present, by shewing in the last place that this epoch, B. C. 1847, was known to the Arabian astronomers; in which case we cannot hesitate to conclude that the knowledge of it must have come to them through the Egyptians, and therefore that it must always have been preserved among the Egyptians.

It is mentioned by Bailly<sup>a</sup> that Augustin Riccius, in his treatise *De Octava Sphæra*, has cited two ancient observations, attributed to the Egyptian Hermes; one of the bright star of Lyra, in the 24° of Sagittarius, and the other of the heart of Hydra, in the 7° of Leo: the date of which was 1985 years before the time of Ptolemy. The authority for this fact, quoted by Riccius, was Abraham Zachut: an Arabian writer, mentioned by D'Herbelot under the name of Zagiag Abou Ishak Ibrahim Ben Mohammed Al Seri Ben Sahal sur-named Al Zagiag, Al Nahoui: the meaning of the surname

<sup>a</sup> *Traité de l'Astronomie Indienne et Orientale*, chapitre cinquième, § xxxvii. p. 136.

of Zagiag in the Arabic according to D'Herbelot being that of glazier, or dealer in glass. It appears from D'Herbelot that he was a learned grammarian, and the author of many works in his own language; and that he died at Bagdad Hej'ra 310, A. D. 922–923. We cannot doubt then that this Ibrahim was well read in the literature of his own country; and that, if he was the author of such a statement as this, he had some foundation for it.

It appears also from Bailly<sup>r</sup>, that Riccius quoted another oriental authority for the same statement, whom he calls Isaac the Jew; from a treatise of his, entitled *Jesod Holam*, or *de Fundamento Mundi*. We do not find any Isaac the Jew in D'Herbelot; but that is no objection. There were two authorities therefore for this statement that the Egyptians had preserved among them two observations of their own Hermes, 1985 years older than Ptolemy. Now Ptolemy's own observations (that is, his catalogue of the stars in particular) are attached to the epoch of A. D. 138 or 139, the first or second of Antoninus Pius<sup>s\*</sup>. Subtract therefore 138 from 1985, and the remainder is 1847. It is clear then on this principle that these two observations of Hermes were dated B. C. 1847; that is, at the epoch of the first Phœnix period. It follows that the Egyptians always retained among them a distinct recollection of the true epoch of that period: for no one can doubt that these two observations attributed to Hermes were purposely set back to that date, because it was the epoch of the Phœnix period. With respect to the observations themselves, their truth or their falsehood is a totally different thing from the truth or the falsehood of this date. Those observations might never have been really made at this time, or by such a person; and yet the epoch to which they are referred might have a real historical existence. The explanation of these observations indeed, and why one was attached to the 24° of Sagittarius, and the other

\* Ptolemy's real epoch was most probably Nab. 885, A. D. 137: the first of Antoninus Pius, according to the canon, but a year before the actual commencement of his reign, July 10, A. D. 138.

<sup>r</sup> Histoire de l'Astronomie Moderne, tome i. Éclaircissemens, Livre v. § xii. 587; cf. p. 591. § xv, and tome i. Liv. viii. § viii. p. 299.

<sup>s</sup> Magna Compositio, vii. ii. 11, 12, 13: iii. 19: iv. 30: viii. iii. 96: ix. x. 187: x. iv. 205: ix. 236, 237: xi. iii. 263: xi. vii. 288.

to the  $7^{\circ}$  of Leo, (very different from the actual place of each of those stars at the time in question,) is another question, on which we may possibly throw some light by our future inquiries; but we shall not enter upon it at present.

It is a curious and interesting corollary, which the reader will deduce at once from the conclusion thus established; viz. that the first introduction of the proper astronomical rule of the reckoning of the noctidiurnal cycle from noon is due to the Egyptians, and is to be traced up to the simultaneous introduction and institution among them of the Phoenix cycle also: for that the introduction of so peculiar a rule for the use of this cycle, as that of reckoning it perpetually from the point of noon on the day of the vernal equinox, (and in fact on any day,) amounted to the introduction and institution of the proper astronomical rule in this respect, requires no proof. And indeed the first introduction of this astronomical rule of the noctidiurnal cycle does seem to have been due to the Egyptians. It was adopted by Ptolemy seemingly as matter of course; that is, out of deference to an old rule, and to an ancient prescription, in Egypt at least: for Hipparchus' rule, as we have seen, was different from his; viz. to reckon from midnight.

It is another remarkable circumstance in the history of this Phoenix rule, that it might almost have anticipated the Gelalæan rule of so much later date. For the explanation of this rule we refer at present to the general Introduction to our own Tables<sup>t</sup>. Every one however, who knows any thing of this latter rule, must admit that it presents a striking resemblance to the Phoenix rule of old. We could not venture to say that the Gelalæan rule was founded on the Phoenix rule; yet such a thing was not impossible: and it is upon record that the Persian astronomers, even when introducing this peculiar rule, professed to be only reviving a rule of much older date: of which we find no distinct traces in Persia, in connection with the Gjemschid correction, though we do in Egypt in connection with the Phoenix cycle. We must therefore either suppose this more ancient rule to have been that of the Phoenix cycle; or conclude with the Preacher of old, that there is nothing new under the sun: and that

<sup>t</sup> Part i. ch. iii. Div. x. sect. i.



the same things come round in a circle. The astronomers of Heliopolis in their proper order of time were 2925 years older than those of Ispahan: yet the former appear to have done in B.C. 1847 almost the very same thing which the latter repeated in A.D. 1079.

SECTION VI.—*On the first and proper length of the Phœnix period; and why it was fixed to the term of 500 years.*

The period of 509 years, and the period of 540 years, which we have found so useful in enabling us to recover the true epoch of the Phœnix cycle, are both different from what appears to have been the true measure of the cycle, 500 years: and we shall not perhaps be considered to have established the truth of the epoch beyond doubt or controversy, until we have shewn that even the first and proper measure of the length of the period was a necessary consequence of the epoch to which the first Phœnix cycle itself was attached. The explanation of this point will bring a very important fact to light.

This epoch of the decursus of Phœnix cycles in the æra vulgaris was B. C. 1847; in the æra mundana was A. M. 2158. Reckon back 500 years from this term in each of these æras, and you come to B. C. 2347 A. M. 1658. Now this was the year immediately after the deluge. It was the year of the descent from the ark. In this year, on the 28th of the primitive Phaophi, on the 16th of the Julian May, on the *feria prima*, Noah and his three sons first quitted the ark, after having once entered it: the destruction of life and the confusion of the order of the world, produced by the deluge, being now at an end; and the earth being again restored to a state of fitness for the inhabitation of men and of animals, and of every thing living besides. It was on all accounts a memorable year; and not likely to be soon forgotten: certainly not within 500 years of the event which gave it so peculiar a character, and when the personal witnesses, as well as survivors, of the deluge itself were still alive: as Scripture distinctly attests of the patriarch Shem<sup>u</sup>, and as we may suppose was probably equally true of the patriarch Japhet, and of the patriarch Ham.

<sup>u</sup> Gen. xi. 11.

To the antediluvian world, as we observed on a former occasion<sup>w</sup>, the proper epoch of mundane time must have been that of the creation; but to the postdiluvian the proper beginning of their own system, the proper epoch of mundane time itself, in connection with the second order of things, and with the second race of mankind, could be nothing but the year of the descent from the ark, the year after the flood. This year must appear to them the absolute epoch of mundane time; the beginning *de facto* of human existence on the face of the earth: up to which every thing else of the same kind had been virtually blotted out from the records of time; and nothing remained to attest the reality of a prior system of things, and to remind men of it, but this ἀποκατάστασις, this redintegration and restitution of the original order and course of things, in the same way indeed as before, but from a totally different epoch.

It appears to us that we possess in this coincidence the most natural and the most satisfactory explanation of the Egyptian fable of the Phoenix, which could possibly be proposed. The Phoenix of the fable, on this principle, was the world before the flood. The death of the Phoenix, in the first and original conception of the fable, was the destruction of this world by the deluge. Its coming to life again out of its own ashes, endued with new youth, new vigour, new beauty, and fitted again for a term and duration of existence resembling immortality itself, was the same world after the flood, regained and renewed from the world before the flood, through the catastrophe of the deluge itself; reviving and reappearing out of its own destruction, as lively, as beautiful, as full of order and harmony and perfection, and as much adapted for perpetuity, as at first.

On this principle there was an historical foundation for the first conception of such a fable; a foundation laid by an event the most generally important to the whole postdiluvian race of mankind. Such a fable could not be more beautiful and ingenious in the conception, than real and substantial in the groundwork on which it rested. We do not mean to say that it must occur to the Egyptians, or to any other of the immediate descendants of the survivors of the flood, to

<sup>w</sup> Diss. ix. ch. iv. sect. ii. vol. ii. 69.

imagine such a fable as this all at once; not even with the contrast before their eyes between the existing state of things and that which had preceded it, to suggest it to them: but we do mean to say that the idea of this fable having once been conceived, before the perception of this contrast had altogether passed away, that recollection and that perception would give it a significancy from the moment of its conception, which would almost divest it of the nature of fiction, and make it look much more like a matter of fact than a fable. Without this actual reference to the two states of existence through which the earth itself had passed, and was still passing, one in the year of the deluge, the other from that year forward which followed the year of the deluge, it could never have appeared to be any thing but a mere invention, however ingenious and beautiful; but with this reference, it would appear to be capable of a very different construction; to be the lively and appropriate expression of a most grave, most interesting, and most unquestionable truth; to be real history, merely symbolized and disguised in a certain manner, instead of being plainly and literally told.

In the reckoning of cyclical or recurring periods the end of one is necessarily the beginning of another; and *vice versa*, the beginning of one is the end of another. And since it is of the nature of such a reckoning to apply either backwards or forwards perpetually, provided it is always in conformity to the same law; even when a reckoning of this kind has had an actual beginning of later date, it may be considered as only continuing the same kind of reckoning from a much earlier point of time. On this principle even the first Phoenix cycle itself might have been regarded, if necessary, as one of a series of such cycles, older than itself; as merely taking up and carrying on, in its own order of time, a prior reckoning of the same kind. And on this principle, and in this way, had the Egyptians chosen to do so, they might have gone back to the epoch of the creation itself, to find the absolute beginning of the decursus of their Phoenix cycles. But they must have felt that there would be a manifest impropriety in going further back for this purpose than the new beginning of things, which was to be dated from the

year after the deluge. To this point however it could not but appear as natural and reasonable to go back with such a reckoning, as easy and feasible, if they thought proper to do so.

The year after the deluge stood just 500 years distant from the actual epoch of the Phoenix cycle. This coincidence, and this alone, might have been competent to determine the actual magnitude of the Phoenix period; whether there was any thing in the nature and constitution of the period itself, or in the uses and purposes to which it was intended to be applied, to connect it *a priori* with the period of 500 years, more than with any other which might be mentioned. For if the actual date of the first period was B. C. 1847, it is self-evident that it was first conceived and brought into existence just 500 years after the deluge. And this, in our opinion, would be abundantly sufficient to account for the magnitude of the period; even though no other reason for it were discoverable also; of which more will be said hereafter.

And in this point of view, and with this intentional reference to the past event of the flood, the epoch of the period and its length or measure together would serve a most important purpose in a chronological respect; viz. by perpetuating the historical date of the deluge, and through it that of the absolute beginning of the second order of things on the face of the earth. It never could be unknown or forgotten among the Egyptians, that their first Phoenix cycle was just one period of the cycle itself later than this absolute beginning of things: and while this cycle continued to be regularly reckoned according to its proper law, the Egyptians could never want a standing memorial of the age of the world; nor an infallible guide and direction for the regulation of their own chronology.

The Phoenix cycle of the Egyptians is most important in another point of view also. It bears witness to the only true chronology of Scripture, that of the Hebrew Bible; and a witness which cannot be mistaken. No one requires to be told that whatsoever the Septuagint, the Samaritan, or any other system professing to be Scriptural, may make of the year after the deluge; the Hebrew Bible only makes it A. M. 1658 B. C. 2347. The first Phoenix cycle, if we have rightly



explained the principles on which it was conceived, affirms and attests the same. It must be self-evident that those who devised this fable and constructed this cycle knew of no chronology of the world but that of the Hebrew Bible; while with respect to this, there was not a shadow of difference between the reckoning of mundane time in Egypt, in B. C. 1847, and that which Moses himself, under the direction of inspiration, left on record in B. C. 1560, or whensoever the Book of Genesis was actually committed to writing.

SECTION VII.—*Scheme of the succession of Phœnix cycles, from the epoch down to the third cycle.*

We shall conclude then with exhibiting the succession of these cycles, so long as we have seen reason to believe they went on regularly and without change of any kind.

*Succession of Phœnix cycles from the epoch downwards.*

Cycle.	A. M.	B. C.	Æra cyc.	
i.	2158	1847	2159	April 7 noon.
ii.	2658	1347	2659	April 4 —
iii.	3158	847	3160	March 31 —

We are entirely of opinion that there was no interruption in this reckoning down to the epoch of the third cycle B. C. 847: but that a change was then made in the epoch of the cycle, whereby this was assumed to be B. C. 848 instead of B. C. 847; as we shall see hereafter. But between the date of this third cycle, whether B. C. 848 or B. C. 847, and what should have been that of the fourth, B. C. 348 or 347, such serious innovations in the principles and in the administration of the cycle appear to have taken place, that every thing may be said to have fallen into confusion; and from this time forward the substitution of any conceivable measure of the period for the old and original one was a very possible contingency, and must actually have happened in various ways.

It is very observable however that three cycles were all, under any circumstances, of which the Egyptians could possibly have possessed a regular and authentic account down to the same point of time. And this serves to explain the fact of which we have already been made cognizant from

testimony; viz. that three appearances of the Phoenix were all (of the nature of authentic and trustworthy) which were actually on record. It is observable also that the epoch of the second cycle, B. C. 1347, was only three years later than the date of the first Sothiacal period, B. C. 1350: which is sufficient to shew that there was some foundation even for the belief which begins to appear, as we have seen, in the course of time, that the epoch of the Phoenix cycle and that of the Sothiacal period, and even the measure of the two periods respectively, were the same.

---

### CHAPTER III.

#### *On the Primitive Sphere.*

---

##### SECTION I.—*On the Mazzaroth of Scripture.*

A REMARKABLE word is found in the Hebrew Scriptures of the Old Testament *twice*, but only twice: Job xxxviii. 32, and 2 Kings xxiii. 5. In the first of these instances it occurs in the form of Mazzaroth; in the second, in that of Mazzaloth: but it seems to be agreed that this is an accidental distinction; the letter R and the letter L being liable in all languages to be confounded and substituted one for the other\*. The termination of the word in each of these forms shews it to be plural; the gender to be feminine. With respect to the signification; the concurrence of ancient versions, the meaning of cognate terms in the other oriental languages, the construction put on the word by the Jewish rabbis, and the explanations assigned it by the best Hebrew scholars of modern times, lead to the inference that the first and most general meaning of this word is that of “houses,” “chambers,” “dwellings” (*oïkoi* or *domicilia* of any kind), and its secondary, particular, or special meaning in these two passages of Scripture is the “ecliptic” or pathway of the sun in the heavens; only as considered to be the same with the

\* For example, in the Latin *Parilia* instead of *Palilia*. The former is as frequent of occurrence, and quite as classical, as the latter: yet the latter is the original and proper form of the word.

twelve signs of the zodiac; that is, as divided out into twelve equal parts, each of which is visited by the sun, and each is occupied by the sun, in its turn; and therefore so long as the sun is passing through it, and is as yet confined within its limits, each may be regarded as the house or chamber of the sun for the time being.

Such appears to have been the process of thought, the *natural* association of ideas, in this instance, which led to the translation of a word, properly denoting a *dwelling chamber*, to these divisions of the ecliptic: and it appears so reasonable and so consistent that we consider it superfluous to say any thing more in confirmation of it. We shall at once assume that, as so used in Scripture, (though only in these two instances,) this word Mazzaroth denotes the ecliptic; yet not the ecliptic in the complex, but the ecliptic in its component parts: the annual circle of the sun in the heavens, divided out into certain equal but individually different segments, twelve in all; the same which are known at present, and always have been, by the name of the Signs of the Zodiac<sup>x</sup>.

## SECTION II.—*The Mazzaroth of Scripture the primitive Sphere.*

The word Mazzaroth then being thus found in Scripture, but only in this peculiar sense and meaning, it seems a natural inference from this fact that Mazzaroth must be the

<sup>x</sup> Cf. Gesenius in voce. Also Hyde, Syntagma, or, In Ulugh Beighi Tabulas Stellarum fixarum Commentarii, p. 88-91.

Some of the learned derive the Hebrew Mazzaroth from a root denoting to encompass, or surround as with a girdle. See Bailly, Histoire de l'Astronomie Ancienne, Eclaircissemens, Liv. ix. § viii. p. 478. This idea is just as applicable to the ecliptic, as that into which we resolve it in the text: for the ecliptic too surrounds the heavens like a belt or girdle. According to Gesenius however the meaning of the cognate term in the Arabic is *an house or dwelling*; and the Arabians call the Zodiac the *circle of palaces*, i. e. the twelve palaces in which the sun resides

or dwells, once in each for one month in every year. According to Selden too (Syntagma, i. cap. i. p. 78) the Jewish astronomers designate the ecliptic *Ophan hamazaloth*, that is, the circle of Mazaloth, and call the signs themselves the "*Twelve Mazuloth*." Suidas has Μαζουράθ· τὰ συστήματα τῶν ἀστέρων ἃ ἐν τῇ συνηθείᾳ ζώδια καλοῦνται. Ἑβραϊστὶ δὲ τινὲς φασὶ λέγεσθαι τὴν λέξιν (corr. τὴν λοξὴν sc. ὁδόν—the ecliptic) σημαίνειν δὲ καὶ τὸν ἀστρώον κύβη. With regard to the orthography, the Septuagint in each instance has Μαζουράθ not Μαζαλώθ: some other Greek versions have Μαζαλώθ. We consider Mazzaroth the more authentic form of the word; and therefore we have adopted it.

scriptural name for the SPHERE: and if so, for the primitive sphere; for the first conception and first representation of the path of the sun in the heavens, and among the stars, all through the year. It is impossible to regard the ecliptic as composed of the twelve signs in any other light than that of the sphere. The spheres of antiquity, which have descended to posterity from any quarter and under any name, are only such delineations as these. The name of Mazzaroth is applicable to each of them alike; and yet they have come down to us only under the name of the sphere: the Egyptian sphere, the Chaldean sphere, the Grecian sphere, the Indian sphere, or the like. They all agree in being conceptions and representations *communis generis*, differing only in their details and in their circumstances: and such conceptions and representations as this of Mazzaroth. The Parapegmata of antiquity also, (so many of which once existed, though so few have descended to posterity,) were Mazzaroth likewise; the Mazzaroth of particular parallels, particular latitudes and meridians; but still Mazzaroth in general: the path of the sun in the heavens and among the stars, adapted to such and such localities, in contradistinction to all others.

We may conclude then with every appearance of probability that the Mazzaroth of Scripture must be the sphere of Scripture: and we may still more reasonably infer from this fact that the Mazzaroth of Scripture must be the Mazzaroth of primitive antiquity, and the sphere of Scripture the primitive sphere itself; the sphere, in its first and simplest, its most abstract and general, conception and representation; the sphere, not of any particular country, but of all the world; not of one people, but of all mankind; not of any definite and determinate point of time, but of all times and of all periods alike. And in our opinion it does much to confirm this conclusion, that the first mention of Mazzaroth in Scripture is found in the Book of Job. The Mazzaroth of the Book of Job, (older than Moses, older than the Exodus, scarcely less ancient than the time of Abraham,) might well be supposed *a priori* the Mazzaroth of primitive tradition also. But how much is this presumption strengthened, as soon as we take into account who it is that makes



this allusion to Mazzaroth even in the Book of Job! who it is that asks the question, "Canst thou bring forth Mazzaroth in his season?" Not Job himself, nor any other of the speakers in this dialogue, who might have been supposed to allude to the particular Mazzaroth of his own country, the sphere of Uz, of Idumæa, of Arabia, or of any other quarter, not necessarily the sphere of all mankind, nor capable of answering to the idea of the sphere in the abstract; but the Creator himself, the author, disposer, and ordainer of the primitive sphere, if there was such a thing from the first. Such a question, proceeding from Him, could never be intended of any thing but the Mazzaroth of his own appointment, the Mazzaroth of all mankind; especially with no allusion except to the simple idea of Mazzaroth, independently of all circumstantial qualifications; to Mazzaroth as simply brought forth in his season, house by house, sign by sign; just as the ecliptic every where appears to be, while the sun is occupying each of its divisions for all climates and latitudes, in its turn, and is causing each in its turn to rise and to set with itself.

SECTION III.—*On the primitive tradition which connected one of the signs of the zodiac, above the rest, with the beginning of things.*

These observations relating to the primitive sphere, and to its proper denomination in Scripture, having been premised; we proceed to observe, in the next place, that though there is no allusion in Scripture to any of the signs of the zodiac, except in this general sense; nor any reason whatsoever to conclude from the first instance of the mention of Mazzaroth in Scripture, that the signs of the ecliptic, regarded as Mazzaroth in this sense both collectively and individually, had yet been appropriated to ζώδια in the time of Job; we cannot doubt that they must have been known and distinguished asunder by number and order at least, not only in the time of Job, but from the first. That there was a distinction of some kind even in the Mazzaroth of Scripture is implied in the words of the question, Canst thou bring forth Mazzaroth in his season? which distinction the necessity of the case re-

quires to be understood of the ecliptic as brought forth or produced not at once, but successively, or in its component parts one after another. We may take it for granted then, that though the ecliptic was made up of Mazzaroth, and the ecliptic in the complex was these Mazzaroth in the complex ; yet these Mazzaroth themselves were distinct parts of the ecliptic, and were known to be so ; that they must have been individually distinguishable in some manner or other ; and if the method actually employed to distinguish and discriminate them asunder, at this early period of the history of the world, was not yet that of ζώδια, (figured representations of any kind,) it must have been that of number, and of order or succession. In short if there was a primitive sphere as well as a primitive calendar, the signs in the former must have been as well known, and just as distinguishable from the first, as the months in the latter. It would be absurd to suppose that the first in the order of succession could ever have been confounded with the second ; or that the signs of one quarter of the natural year, in their proper time and season, could ever have been mistaken for those of another.

Now though no tradition of this kind, so far as we know, is older than the time by which the signs of the ecliptic had already come to be associated with the figures of the zodiac ; we meet with intimations of great antiquity, which recognise a closer connection between one of the signs and the beginning of things than any of the rest. And this particular sign, traditionally associated with the origin of things themselves, is that which is represented in the zodiac under the figure of the Bull, and among the denominations of the signs, derived from such figured representations, is known by the name of the Bull. And this is the more remarkable, because in no delineation of the signs of the zodiac themselves, with which we have been made acquainted, was the figure of the Bull ever laid down as the first : in no graduation of the sphere of antiquity which was ever made, so far as we know, did the actual division of the signs of the ecliptic begin with that which is known by the name of the Bull, and not with that which is known by the name of the Ram.

The Persians, as we have already observed <sup>z</sup>, distinguished the signs of the zodiac by the letters of the alphabet: and though the fact is undeniable that the first sign in their sphere was that of the Ram; the first letter of the alphabet was assigned to the Bull; the second only to the Ram. What was this but to imply that though the Ram, *de facto*, and after a time, was the first of the signs, the Bull was virtually so, and at first? The Bull, and not the Ram, was the proper type of their Mithras also; that is, of the sun. In this Bull they supposed the seminal principles, the primordia or elements of all being and all life, to have been originally summed up and deposited; though they were afterwards transferred from this Bull to the moon: that is, as soon as this Persian doctrine of the origin of all things in this solar Bull came to be mixed up with the Egyptian one of the similar derivation of all things from their Osiris and Isis, in the form of the Egyptian Apis; a Bull also, but related as much to the moon as to the sun.

This Persian tradition however referred the cosmogony, properly so called, to the Bull, and to the Bull in the heavens, or the sign so denominated. It supposed the creation of the Bull *prior* to that of any thing else, and *in order* to that of every thing else: nor is there any mode of accounting for it so natural and probable as the supposition of a generally received belief of the actual production of all things, (in connection with the existing system of the universe at least,) when the sign of the Bull in particular was in the ascendant. This persuasion was older among them than the second Zoroaster: and older than Gjemschid, the author of the correction of the Persian calendar in B. C. 702. It goes back at least to the time of the elder Zoroaster, the Bactrian reformer, the date of whose correction of the primitive calendar, as we have seen, was B. C. 947: and the influence of this belief may be perceived even in his correction itself, and in the doctrine of the Ghahanbârhâs, connected with it: as some time or other, if the proper opportunity for so doing should ever arrive, we may take occasion to shew more at large.

The Chinese tradition of the beginning of the movement

<sup>z</sup> Diss. ix. ch. iv. sect. v. iii. vol. ii. note at p. 83.

of the earth<sup>a</sup> placed it critically on the confines of the Ram and of the Bull: and this beginning of the movement of the earth is necessarily the beginning of time and the beginning of things itself. Among the Indians or Hindus, Siva was the type or abstract conception of time: and according to Mr. Bentley, Siva was the greatest of all their gods<sup>b</sup>: and Siva was always represented by them accompanied by a Bull; that is, he was invariably associated with the sign of the Bull; though the Hindu calendar is never known to have begun in the Bull, but always either in Virgo or in Aries, or in some intermediate sign. We shall see too, we hope, hereafter that they gave a name to this sign of the Bull, in contradistinction to that of the Ram, which leads to the inference that, though the Ram was prior to the Bull in the order of the signs, the Bull was older than the Ram in the order of time. We can draw no other conclusions from these Indian traditions than what we have done from the Persian or the Chinese; viz. that general belief among them too connected the beginning of time with the Bull; and that, whatsoever liberties they might take with antiquity and primitive tradition in other respects, on this one point they never ventured to alter or to contradict it: their own conceptions however fabulous, of later date, were still carefully accommodated to it.

We have traced this same tradition and this same persuasion among the nations of the north of Europe also<sup>c</sup>: and among the Hetrurians, and the aborigines of ancient Italy. It ought not therefore to surprise us, if we find it virtually recognised even in Virgil, and at so late a period in the history of time itself as that of the composition of Virgil's *Georgica*:

Candidus auratis aperit cum cornibus annum  
Taurus, et averso cedens Canis occidit astro<sup>d</sup>.

The great learning and erudition of Virgil are acknowledged by all the commentators of antiquity. But his modesty was equal to his learning; and he makes us acquainted with the extent of his reading and information only through such

<sup>a</sup> Diss. ix. ch. iv. sect. vii. v. vol. ii.  
note at p. 94.

<sup>b</sup> Hindu Astronomy, p. 58; cf. p. 60.

<sup>c</sup> Diss. ix. ch. iv. sect. xii. x: sect.  
x. viii.

<sup>d</sup> *Georgica* i. 217.



accidental allusions and intimations as these. The natural year in his time was notoriously beginning in March and in Aries; the civil year in January and in Capricorn: yet he speaks in this instance of the proper beginning of the year as if in Taurus and in April\*. And so he might have learnt it to be from ancient and primitive belief: and so he might have inferred from the Roman festival of the *natales urbis* itself, which was an annual commemoration of the beginning

\* The vernal equinox in Virgil's time was falling on March 23, and therefore the ingress of the sun into Aries on March 23; the ingress of the sun into Taurus on April 22 or April 23; though, according to the Roman rule of dating the ingresses in 8vis partibus, it might be reckoned April 15 or 16.

It is observable that, along with this allusion to the opening of the year in Taurus, he mentions another natural criterion of the same time, the setting of Sirius, or the dog-star:

Averso cedens Canis occidit astro.

This line has given much trouble to the critics and commentators on Virgil, both ancient and modern. It becomes perfectly intelligible however, as soon as it is understood that he means the heliacal setting of the dog-star; which is always followed by its ceasing to be visible. A star sets heliacally when it rises a certain length of time after the sun; and it may be seen once or twice perhaps immediately before it sets in the evening twilight. But as it must set earlier and earlier every night, it must soon become invisible, and cease to appear at all; until it again becomes visible in the morning twilight.

It is a curious coincidence that in those Parapegmata of antiquity with which Virgil was most likely to be acquainted, as that of Euctemon, or that of Eudoxus, this setting of the dog-star is actually dated April 25, on the second of Tauron. See the calendar of Geminus, Uranologium, p. 69. C-D. Ovid, *Fasti*, iv. 904-942, has the date of the same phenomenon, vii kal. Maias (the Robigalia) April 25. Columella, (xi. cap. ii. § 37) *Pridie kal. Maias* (April 30 Rom.) *Canis se vespere celat*. Pliny, H. N. xviii. 69. § 3, has, *Per id quadriduum* (vii kal. Maias—iv kal. Maias, April 25-28,) *varia gentium observatione . . . Canis occidit*.

We may presume then that Virgil himself assumed the date of the same phenomenon, April 25; that is, about the time of the ingress of the sun into Taurus. He does not mean to say that the dog-star was setting as the sun was rising in Taurus; but that the dog-star was setting as the sun was opening the year in Taurus. And as *setting* in this instance is the same thing as *disappearing* or *ceasing to be visible*, *averso* must be understood accordingly, in the sense of *turned away from view*; that is, hidden in the rays of the sun, and rendered invisible. Cf. Macrobius in *Somnium Scip.* i. xviii. p. 90, who also explains the allusion on this principle.

of things, as much as of the origin of the city of Rome. There are extant also, in unpublished Mss. of various kinds, delineations of the sphere under the names of the celestial months; in which the enumeration begins from Taurus or Tauron, not from Aries or Krion<sup>e</sup>. We need not wonder indeed that a tradition to this effect should have been universally retained among mankind in one shape or another; since nothing could have a more sure and unquestionable foundation in the matter of fact. The earliest sidereal observation among the Egyptians, and (whether truly or falsely yet traditionally) attributed to their own Hermes, is one of Aldebaran, or the Bull's eye<sup>f</sup>; that is, of the principal star in the constellation of the Bull; in that sign of the zodiac in which time itself, as measured or measurable perpetually whether by the sun or by the stars, was first supposed to have begun.

SECTION IV.—*On the two stars upon the horns of the Bull, Βῆτα and Ζῆτα Tauri.*

The connection of this one of the signs of the ecliptic (afterwards known by the name of the Bull) with the beginning of time and with the beginning of things, as both have gone on perpetually in conjunction with human existence and human experience, being thus authenticated by an universal tradition; we observe next That, according to the mode of delineating the Bull among the other signs of the zodiac, which, for any thing discoverable to the contrary, has always been adopted, it was never a perfect representation of such an animal. The ancients remark that nothing but the *προτομή* or *πρότμησις* (*the forequarters*) of the Bull was actually laid down on the sphere. It is peculiar to this zodiac consequently, that no part is asterised but the horns, the head, and the neck: and as these have been always laid down on the sphere facing the east, or, as the astronomers of old designated such an aspect, looking *εἰς τὰ ἐπόμενα*, the hinder parts of the zodiac were always the first to rise, the fore parts the last; and in particular the horns, as the foremost or

<sup>e</sup> For example, in a Ms. of Joannes Damascenus, in the Bodleian Library at Oxford.

<sup>f</sup> Bailly, *Astronomie Ancienne*, Éclair-

cissements, Liv. iv. § iv. p. 356. *Traité de l'Astronomie Indienne*, chap. v. § xxxviii. 137, 138: ch. ix. § xxix. p. 255.

most easternly of all. And this disposition of the figure, by virtue of which the horns, the foremost part of the figure itself, were necessarily the last to rise and to pass the meridian, was very probably purposely adopted, as we may see hereafter, to intimate the connection of this whole zodiac, and of this part of it especially, with the first beginning of time itself.

Now there are two stars, which astronomers call  $\beta\eta\tau\alpha$  Tauri and  $\zeta\eta\tau\alpha$  Tauri, ( $\beta$  Tauri and  $\zeta$  Tauri;) because they are part of the stars which go to the asterism or constellation of Taurus. But their proper connection with the figure so represented by stars has always been with the horns; and their proper place in connection with the horns has always been not the root of the horns, (like that of some others of the stars which belong to the same constellation,) but the extreme points of the horns; the tips of the two horns themselves. One of them stands at present, and for aught which appears to the contrary always has stood, at the top of the north horn; and that is  $\beta\eta\tau\alpha$  Tauri: the other at the top of the south horn, and consequently  $\zeta\eta\tau\alpha$  Tauri.

We desire to direct the attention of astronomers in general to these two stars in particular; because, unless the conclusion at which we have arrived, that the actual beginning of things in connection with the present system was the mean vernal equinox, B. C. 4004 A. M. 1 April 25 at midnight, can be disproved or shewn to rest on insufficient grounds, it must be certain, from the doctrine of the precession, that these two stars at the beginning of things in question were very peculiarly situated with respect to the sun; and the sun with respect to them.

The position of these two stars in the zodiac at present is such that the ecliptic passes between them; and even at present almost at an equal distance from both. Owing indeed to the gradual diminution of the obliquity since the beginning of the present system of things, the latitude of  $\beta\eta\tau\alpha$  Tauri has been increased in a certain proportion, and that of  $\zeta\eta\tau\alpha$  Tauri has been diminished in the same proportion, in comparison of what it must have been at first; but an astronomer would have no difficulty in calculating the amount of this change in the relative position of each, nor in

allowing for it: so that if  $\beta\eta\tau\alpha$  Tauri is standing at present about  $5^{\circ}$  north of the ecliptic, and  $\zeta\eta\tau\alpha$  Tauri about  $3^{\circ}$  south of it, it is very allowable to suppose that B. C. 4004 the latitude of the former was about  $4^{\circ}$  N. and that of the latter about  $4^{\circ}$  S. or not much less.

It might very well be made a question in what manner the subdivisions and details of the ecliptic must have been first determined, as it might be presumed they must have been some time or other determined: i. e. how it came to be divided into twelve equal and larger parts called signs, and into 360 equal and smaller parts called degrees; and what was the order of this proceeding: whether the whole was first divided into degrees, and then these degrees were distributed among the signs; or *vice versa*, the whole was first parcelled out among twelve signs, and then each of these among 30 degrees. The ancients have left on record a curious account of this process; which we cannot ourselves believe was ever actually resorted to for any such purpose, at least at first; or could ever have been necessary afterwards, except to recover what had once been possessed and in the meantime had been lost, and had afterwards to be regained by men for themselves, as well as it might.

But with respect to the original conception of such distinctions; we are persuaded that mankind was as familiar with the division of the ecliptic into signs, and with the division of signs into degrees, from the moment of his birth, as with the division of the year into months, and the division of months into days: and that it would be just as rational to inquire into the origin or into the order of these two latter distinctions, as into those of the two former. The most probable opinion on this subject, and the most consistent both with the circumstances under which man is represented in Scripture as brought into being at first, and with every matter of fact calculated to throw any light on the kind and degree of the knowledge which he must have possessed from the first, which is afterwards discoverable; it has always appeared to us, is that which assumes that men were really never left to find out any thing of this kind for themselves:

\* Sextus Empiricus, *Adversus Astrologos*, v. p. 337. § 1—344. § 42. Cf. Macrobius, i. xxi. 108.—110. *Somnium Scip.*



that all necessary, all useful, and even all ornamental and becoming knowledge and information of every kind—whatsoever was most worthy of the rank and station, which man was destined from the first to occupy in his own creation, and actually did occupy, for no inconsiderable length of time, in a state of perfection little, if at all, inferior to the angelical—was born with him; was intuitive, not acquired; was the gift of his loving and bountiful Creator from the first; and was possessed by him, as the natural furniture of a mind like his, from the first; just as much as the organs of speech, the faculty of language, the free use of words, and the plenary possession of ideas familiar to his apprehension from the moment of his birth, and a perfect reflection of the world without in the world within himself: ideas being merely the representations of things, and words being merely the expression of ideas, and the former being necessarily prior to the latter.

But be this as it may, no one can look at these two stars on the top of the two horns of the Bull, and conceive a line to be drawn perpendicularly from either of them to the ecliptic, and these two stars to be joined by an arc of the sphere; and not have as perfect an idea, communicated to his mind by means of the segment of the ecliptic intercepted between that perpendicular and this arc, of what astronomers call a degree of the ecliptic, as in the nature of things was possible: nor consequently of what must be conceived to be meant by the 360th part of the great circle in the heavens which is annually described by the sun; or by the 180th part of that half of this circle which is always visible above the horizon; or by the 30th part of one of those houses or chambers, called Mazzaroth in the primitive sphere, and signs at present, which the sun occupies in succession for a twelfth part of the mean natural year; or, lastly, of that particular portion of the ecliptic circle itself, the annual pathway of the sun in the heavens, which it must be supposed to pass through at an average rate every day. The position of these two stars relatively to each other and to the ecliptic is calculated to give the most distinct idea of what must thus be understood by a degree of the ecliptic, which can be conveyed to the senses by any thing visible in the

heavens. It is a remarkable circumstance too, that as one of them stands on the north of the ecliptic, and the other on the south, and even at present nearly in the middle of that segment of the zodiac which is found on either side of the ecliptic also; originally each must have stood much more exactly in the centre of its proper half of the zodiac. For the breadth of the zodiac on either side of the ecliptic is  $8^{\circ}$ <sup>h</sup>: and if the latitude of each of these stars at first was about  $4^{\circ}$  N. and S. respectively, each must have stood at first in the middle of its proper segment.

It follows, from the position of the ecliptic relatively to these stars, that the sun cannot be in conjunction with the one and not be in conjunction with the other also; and that it must be once every year in conjunction with both at the same time; viz. as often as it comes to the point of the ecliptic, cut by the arc supposed to pass through and to join these two stars: and at present this is generally the case May 30 or 31 old Style, every year, or June 11 or 12 new Style. But A. M. 1 B. C. 4004 the sun was in conjunction with them on the Julian April 25: and though at present it comes to a state of conjunction with them, such as we have described, only 10 or 11 days before midsummer, yet A. M. 1 B. C. 4004 it must have been in conjunction with them, under the same circumstances, at the mean vernal equinox.

There cannot be any doubt of this fact, if there is no reason to doubt of the truth of the doctrine of the precession; that is of the addition made every year to the longitudes of the fixed stars by the retrogradation of the equinoctial point on the ecliptic. The mean annual rate of the precession being known; it is easy to recover the places of any of the fixed stars, and at any distance of time past, from their known places at present, or at any intermediate point of time: and though, under some circumstances and in some cases of this kind, it might be necessary, over and above the simple effect of precession, to take into account the proper motions of the stars themselves, it is not necessary to do this in the case of these two stars,  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tanri, in particular. They have proper motion, it is true: but we have

<sup>h</sup> Geminus, cap. iv. Uranologium, 20. B. Cf. Hyginus, Poeticæ Astron. lib. iv. cap. v. xiii. Manilius, i. 680.

been informed on the best authority that it is too inconsiderable to make an appreciable difference to the longitudes of their true epochs, even as much as 5 or 6000 years' back from the present time. So that we have nothing to do, in this instance, except to apply the formula of the precession; and from the observed and ascertained places of these stars at any given time at present, we shall obtain their corresponding places as far back as we have occasion to investigate them.

The mean annual rate of the precession, which we have assumed in our own table of that kind<sup>i</sup>, is 50".069,541, which every astronomer will admit to be an allowable measure of its kind; and if not absolutely the truth, yet a very near approximation to the truth. And as the epochs of all our tables of this supplementary description are purposely adapted to A. D. 1801, A. M. 5805, we begin with calculating the amount of the precession according to this rate in 5804 years; i.e. from A. M. 1. B. C. 4004 to A. M. 5805 A. D. 1801.

*Table of Precession in mean longitude.*

years.				
5000	=	69	32	27.705
800	=	11	7	35.632,8
4	=		3	20.278,164
<hr/>				
5804	=	80	43	23.615,964
80 days	=			10.966,867
<hr/>				
		80	43	34.582,831

The mean longitude then of the point of the ecliptic cut by the arc supposed to join these stars, which, A. M. 1. B. C. 4004, we have assumed to have been 0° 0' 0"; in 5804 years, i.e. A. M. 5805 A. D. 1801, according to our table, on June 11 that year, was 80° 43' 34".582,831, or 80° 43' 34".6. Now we have been favoured by professor Challis of Cambridge with an accurate calculation of the true place of this same point for mean noon June 11 A. D. 1801 new Style also: according to which its mean longitude was

and its R. A. was

81	21	59.8
80	36	5.8

<sup>i</sup> Supplementary tables.

If we compare this latter with the mean longitude found by our table—which is as much a table of precession in mean right ascension perpetually as in mean longitude—we have

Mean right ascension of the point in question, according to our table, June 11 A. D. 1801	..	80°	43'	34.6"
According to professor Challis	.. ..	80°	36'	5.8"
Difference in 5804 yrs.	.. ..		7'	28.8"

We have been favoured also with the right ascensions and the declinations of these two stars,  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri, at the same point of time: so that we can compare them with the right ascension of the middle point at the same epoch also. The declination of  $\beta\eta\tau\alpha$  Tauri, at mean noon July 11 N. S. A. D. 1801, according to professor Challis was

	28	25	32.9			
that of ζητα Tauri	21	0	28.9			
Right ascension of the middle point, mean noon						
June 11 A. D. 1801	..	..	..	80	36	5.8
Right ascension of βητα Tauri	..	..	..	78	26	11.7
				2	9	54.1
Right ascension of ζητα Tauri, June 11 A. D. 1801.				81	26	44.3
Right ascension of the middle point	..	..	..	80	36	5.8
				50	38.5	

It thus appears that A. D. 1801, 5804 years after A. M. 1. B. C. 4004, the right ascension of  $\beta\eta\tau\alpha$  Tauri was  $2^{\circ} 9' 54''$  less than that of the point of the ecliptic, cut by the arc joining it and  $\zeta\eta\tau\alpha$  Tauri, and the right ascension of  $\zeta\eta\tau\alpha$  Tauri at the same point of time was  $50' 39''$  greater\*. If then the proper motion of these two stars is not such as to make any material difference to the truth of a calculation like this, even for five or six thousand years; it is manifest that their relative position, and that of the point of the ecliptic in question, one in respect of the other, could not have been materially different, A. M. 1. B. C. 4004, from

\* The right ascension corresponding to the mean longitude of  $80^{\circ} 43' 34''$  or  $35''$ , A. D. 1801, we have been informed, would be  $79^{\circ} 54' 24''$  or  $25''$ . On this principle, the right ascension of the middle point, A. D. 1801 June 11 mean noon, was  $1^{\circ} 32' 20''$  less than that of  $\zeta\eta\tau\alpha$  Tauri, and  $1^{\circ} 28' 13''$  greater than that of  $\beta\eta\tau\alpha$  Tauri: i. e. almost a mean between the two.



what it appears to have been A. M. 5805 A. D. 1801 : and if the sun was in conjunction with both, under such circumstances as these, in mean longitude or right ascension  $80^{\circ} 36' 5'' \cdot 8$  A. M. 5805 A. D. 1801, it must have been in conjunction with both under corresponding circumstances A. M. 1. B. C. 4004, in mean longitude  $0^{\circ} 0' 0''$  : and if it attained to the former longitude June 11 or 12 new Style, May 30 or 31 old Style, A. M. 5805 A. D. 1801, it must have attained to the latter April 25 A. M. 1 B. C. 4004.

SECTION V.—*On the recovery of the primitive sphere* A. M. 1 B. C. 4004, *from the ascertained places of  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri at the same point of time.*

Now the fact being once established, that A. M. 1. B. C. 4004, at the beginning of the present system of things, these two stars,  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri in particular, were both similarly situated, relatively to the sun and to the vernal colure, or nearly so ; the former possibly not much more than a degree to the *west* of it at that juncture of time, and the latter possibly about a degree to the *east* of it ; it is of cardinal importance to the history of the sphere both at first and ever afterwards. Each of these stars being visible to the naked eye in any climate of the world, (especially the north star,  $\beta\eta\tau\alpha$  Tauri, which is the larger and brighter of the two,) their very position under such circumstances must have pointed out in an intelligible manner, and level to the comprehension of any spectator whatsoever, the beginning and the end of the ecliptic itself ; that of  $\beta\eta\tau\alpha$  Tauri the end, and that of  $\zeta\eta\tau\alpha$  Tauri the beginning. And though no one, without pretending to be wise above what was written, could venture to say that these stars must have been so disposed for this very purpose ; yet thus much we might perhaps, without impropriety, venture to say, that had they been purposely designed and constituted, as a visible and standing token of the true point of the termination and of the true point of the commencement of the primitive sphere ; they could not have answered that end and design more effectually. Nor is it any objection that, just at this juncture of time, (i. e. at the mean vernal equinox, A. M. 1. B. C. 4004,) being both in conjunction with the sun, they would not be actually visible : they

would be immersed and lost sight of in the rays of the sun. In six months' time after this first conjunction with the sun, when the sun was now on the autumnal colure, they would be in opposition to the sun; rising as the sun was setting, and setting as the sun was rising: and then they would be distinctly visible. Nor must we suppose that either these, or any other of the stars, were disposed by their common Creator in any manner relatively to the ecliptic, to *teach* men the division of the sphere, but to *attest* it; to signalize and to point it out; to be a standing indication of it, as long as they continued to retain the position in which they were found placed relatively to it at first. Nor would they cease to answer that purpose, even when it came to be seen that by virtue of the precession they had shifted their place, and got more in advance on the ecliptic to the east. The precession in longitude of the fixed stars, and the causes to which it was due, the fact of the phenomenon itself at least, appears to have been well known both to the antediluvian and to the postdiluvian world; together with other secrets of astronomy which modern science is too apt to imagine are exclusively confined to itself. And this being known, it was as easy for the ancient world to recover the primitive sphere from that of their own time, as it is for modern astronomers to do so at present; and by means of the same methods of proceeding exactly in either case too.

Now the middle point of the ecliptic between these two stars being assumed as the true zero or 0 of the primitive sphere; (the intersection of the equinoctial and of the equator at the beginning of things, the first point of Aries, as astronomers term it, in the primitive sphere itself,) pointed out and designated even to the eyes of men, by the position of these two stars, one to the west the other to the east of it, in that first instance of all; let us suppose ourselves to set out with the sun from this middle point, and to accompany it along the circle of the ecliptic in its annual journey among the stars. It is a remarkable coincidence, and yet one which may easily be verified by means of a common celestial globe, that at the distance of the first 30 degrees from this point, and at the distance of every 30 degrees afterwards, we shall find ourselves coming with the sun to the neighbourhood of

some star, or group of stars, sometimes in the very pathway of the ecliptic, always within the eight degrees assignable to the zodiac on the right and on the left of the ecliptic, of sufficient magnitude to be visible to the unassisted eye, especially in the east, where stars of the fifth and sixth magnitude are capable of being distinguished without the help of glasses; and whether critically on the point of the 30th degree in each instance or not, yet near enough to it to serve as sensible and intelligible marks of discrimination between the termination of one such division of 30 degrees and the beginning of another, all round the ecliptic itself.

The spaces of the ecliptic circle, thus limited and thus defined, and thus pointed out by the constitution of nature itself, were the signs of the primitive sphere. They did not measure or form those signs: but they shewed men how they were to be measured and formed. They directed men's eyes where to look for, and where to find, the proper limits and boundaries of each with the utmost possible exactness. They taught men consequently where to look for, and where to find, and how to distribute, and how to delineate, even such abstract conceptions as the Mazzaroth of Scripture, the domicilia, mansions, or houses of the sun, in his annual pilgrimage from star to star; merely as the δωδεκατημόρια of the ecliptic, equal divisions of the great circle of the year into twelve component parts, made up of 30 smaller and equal parts themselves; without any reference as yet either to ἀστερισμοὶ—the formation of the stars into constellations—or to ζώδια, the representation of figures of any kind, taken from the animal world, by means of stars; each of which, in comparison of this first and simplest, yet most abstract conception and distribution of the sphere, is of much later date.

Let the astronomer keep his eye fixed on these particular stars, which thus stand at the distance of  $30^\circ$  or of some multiple of  $30^\circ$ , or nearly so, from  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri, all round the ecliptic, or within the just limits of the zodiac; beginning with this point of time A. M. 1. B. C. 4004: and let him only take into account the change produced in their places not merely by the effect of precession, and by the diminution of the obliquity of the ecliptic, but also by their own proper

motion; and he will possess all the data which he can require for the recovery and restoration of the sphere, from its first and original form, (that in which it was most properly entitled to the name of Mazzaroth,) coæval with the birth of mankind themselves, A. M. 1. B. C. 4004, down to that which it assumed in B. C. 848: since which time the primitive sphere of antiquity, the constitution and appointment of nature itself, has undergone no further change, at least from the hands of men. The sphere which has descended to posterity is the last modification of the primitive sphere which was ever made by men: and it experienced its final modification in this way, as we shall see hereafter, in B. C. 848: and it still retains the characteristic marks and distinctions which were impressed upon it at that very time.

It must be certain at least, (since the accumulated amount of the precession or increment in mean longitude, in 5804 years, has been found to be only  $80^{\circ} 43' 34''.6$  according to our table, and only  $81^{\circ} 21' 59''.8$ , according to the accurate calculation of professor Challis,) that, if we go forward 80 or 81 degrees of mean longitude from the vernal colure A. D. 1801, we must come to the identical stars which stood on the vernal colure A. M. 1. B. C. 4004, or to those which were nearest to it: and these, as we have shewn, are  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri: and if we go forward  $80^{\circ}$  or  $81^{\circ}$ , from the summer solstitial colure A. D. 1801, we must come in like manner to the stars which stood on the same colure, or nearest to it, A. M. 1, B. C. 4004: if we go forward,  $80^{\circ}$  or  $81^{\circ}$  from the autumnal colure, A. D. 1801, we must come to the stars which stood on it, or nearest to it, A. M. 1. B. C. 4004: and if we reckon another  $80^{\circ}$  or  $81^{\circ}$  from the winter solstitial colure A. D. 1801, we must come to the stars of that colure, or the nearest to it, A. M. 1, B. C. 4004. And thus it must be possible (and on astronomical principles with certainty too) from the state and phenomena of the heavens, 5804 years after the beginning of things, to recover the aspect, phenomena, and state of the heavens even at the beginning of things itself.



## CHAPTER IV.

*On the modifications of the primitive sphere, in Egypt, from the epoch of the Phœnix cycle downwards.*

---

SECTION I.—*On the mean annual measure of the precession.*

THE phenomenon of the precession, or of the addition annually made to the longitude of the fixed stars, has been of perpetual occurrence ever since the beginning of things. It is the effect of causes which began to operate as soon as the earth began to revolve round the sun, subject to that universal law, by virtue of which every particle of matter in the universe is attracted by and attracts every other: and in particular subject to the attraction of those bodies which make part of the system to which it belongs itself, the sun, the moon, and the planets. It is agreed among astronomers that it goes on, and always has done, in some proportion or other, annually; though, according to what rate or in what proportion every year, astronomers are not agreed, nor indeed does it appear to be possible exactly to determine, or within more than certain limits of the truth.

The annual effect of precession is apparently slight and inconsiderable, and such as easily to escape observation; but its accumulated effect in a number of years is very sensible: and in the course of time it must amount even to entire signs or spaces of 30 degrees on the ecliptic; and so must change the apparent places of the fixed stars in a manner which cannot be mistaken, and must be obvious even to the most superficial observation. Astronomers differ concerning a fixed annual rate of the precession: but it seems to be admitted that, whatsoever may be its actual amount in any one year, in 2150 years its accumulated amount will not fall very far short of an entire sign. In M. Biot's treatise on Physical Astronomy<sup>k</sup>, it is assumed that the exact number of years, in which the mean annual rate of precession will accumulate to an entire revolution of 360 degrees, is

<sup>k</sup> Tome iv. § 70. p. 105.

25,868 years; and this is at the mean rate of 2155 years, 8 months, for every sign, or every equal space on the ecliptic of 30 degrees.

This being the case, it could not be considered *a priori* an unreasonable hypothesis, that the annual addition made to the longitudes of the fixed stars, at a mean rate, might be such as to amount to an entire sign in one year and four months more than this period of 2155 years eight months; that is, in 2157 years, instead of 2155 years eight months. And this being assumed, viz. that precession amounted to 30 degrees exactly in 2157 years; in order to obtain its mean annual rate on this principle, nothing would be necessary except to divide 30 degrees by 2157. The quotient of this division is  $50''\cdot069,541$ : and this must be the mean or average rate of precession for one year, corresponding to an amount of 30 degrees, or of one sign of the ecliptic, in 2157 years. It is on this assumption that the mean annual rate of precession for the use of our own tables has been obtained; and the table of mean precession, incorporated with the rest of our supplementary tables, has been calculated<sup>1</sup>. And has one property to recommend it, (which for any thing we know to the contrary is peculiar to it,) viz. that it is nearly an integral decimal fraction.

SECTION II.—*On the change in the places of the fixed stars observed in Egypt at the epoch of the Phoenix cycle.*

The mean annual rate of the precession however, assumed in our Tables, was not deduced from this period of 2157 years, merely on the strength of this admission of astronomers at present; but because we had seen reason to conclude that, 2157 years exactly from the beginning of things, it had been perceived from actual observation of the fact itself that the stars had changed their places in the heavens to the amount of 30 degrees, or of one entire sign. And, if we are not mistaken, the clearest and most decisive proof of the truth of this conclusion is supplied by the history of the Phoenix cycle of the Egyptians, and of every thing else with which it is found to have been connected.

For first, it is to be observed that we have already deter-

<sup>1</sup> See the Introduction to the Tables.

mined the epoch of this cycle, (on good grounds of a totally different kind and independently of any such further consideration as this,) to B. C. 1847 A. M. 2158: and yet this epoch is exactly at the distance of 2157 years from B. C. 4004, A. M. 1: so that, whether it was accident or whether it was design which produced the coincidence, the coincidence itself is equally matter of fact in either case; viz. that the date of the first Phoenix cycle among the Egyptians was just one period of 2157 mean natural years distant from the beginning of mundane time. The consequence of this fact, as regards the phenomenon of the precession, and the constant operation of the law of precession on the apparent places of the fixed stars, was necessarily *this*: That at the epoch of the first Phoenix cycle in Egypt, saving and excepting those cases in which the proper motions of the stars themselves, or other peculiarities applicable to some of them though not to the rest, might have interfered with such an effect, there would not be a star visible in the heavens, or at least in and about the ecliptic, the apparent place of which had not undergone a change amounting to 30 degrees, in comparison of what it must have been, and might still be remembered to have been, at the beginning of mundane time. Such must have been the alteration produced in the sensible appearance of the heavens, except in the cases above specified, as the necessary effect of precession; whether it was observed or not, and whether attention was expressly directed to the nature of the effect or not.

Yet it would be altogether gratuitous to suppose that, among the Egyptians in particular, attention would not be directed to this phenomenon as soon as it became actually perceptible; or that the phenomenon itself, when it occurred, would take them by surprise. The effect of the change however so produced, and at this juncture of time, on the apparent positions of the stars, was this: That stars, which A. M. 1 B. C. 4004 were standing, (like  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri,) one about a degree to the west, the other about a degree to the east, of the first point of Aries, would now be standing one about a degree to the west and the other about a degree to the east of the first point of Taurus: and if there was any star, or any number of stars, which A. M. 1 B. C. 4004 were

standing on or about the first degree of Pisces, 30 degrees to the west of the vernal colure at that time, these would now be standing on or about the vernal colure, on or about the first point of Aries itself.

Now there are certain stars of which both these things would be the case; which therefore, next to  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri, are among the most important and interesting of the stars in general; and to which consequently, both A. M. 1 B. C. 4004 and A. M. 2158 B. C. 1847, the attention of astronomers ought to be particularly directed. They constitute a group of stars four in number; which in the figured representations of the signs are laid down in a line parallel to the ecliptic, and close to the ecliptic, on the tail of the Ram. The most easternly of them, that which is situated nearest the extremity of the tail of the Ram, is known to astronomers by the name of  $2\tau$  Arietis. In Ptolemy's catalogue it is set down as a star of the fourth magnitude<sup>m</sup>: and as it appears from Flamsteed's catalogue<sup>n</sup>, that its longitude, Jan. 1, A. D. 1690, was  $49^{\circ} 18' 49''$ ; it follows, according to our Tables, that its longitude A. M. 1 B. C. 4004 was  $49^{\circ} 18' 49'' - 79^{\circ} 10' 36''^*$ ; that is,  $330^{\circ} 8' 13''$ , as nearly as possible 11 signs exactly. Consequently, A. M. 2158 B. C. 1847, just 2157 years afterwards, its longitude would be as nearly as possible,  $0^{\circ} 0' 0''$ ; and if it was standing A. M. 1 B. C. 4004, at the beginning of mundane time, 30 degrees on the ecliptic west of the vernal colure, A. M. 2158 B. C. 1847, at the epoch of the first Phœnix cycle, it must have been standing as nearly as possible on the vernal colure itself.

\* B. C. 4004—A. D. 1690 = 5693 years.

Table of mean precession.

	years.			
5000 =	69	32	27.705	
600 =	8	20	41.725	
90 =	1	15	6.259	
3 =		2	30.209	
Mean V. Ex. A. D. 1690, March 12, 5693 =	79	10	45.898	
Subtract 70 days =			9.596	
A. D. 1690, Jan. 1	79	10	36.302	

<sup>m</sup> Delambre, ii. 271. Cf. Ptolemy, Opp. ii. lib. vii. iv. p. 51.

<sup>n</sup> Ibid. ii. 262. 271. Cf. Flamsteed, Opp. iii. Catalogus Britannicus, p. 2.



It follows that A. M. 2158 B. C. 1847 the sun must have been in conjunction with  $2\tau$  Arietis at the mean vernal equinox, just as A. M. 1 B. C. 4004 it had been so with  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri. It follows that this star would be rising, and coming to the meridian, and setting with the sun at this time, as those two stars had been at first: and though neither would this star be actually visible at this time, any more than those two others, under the same circumstances, had been at first; that would make no difference to the fact of its actual position relatively to the sun, (nor even to the knowledge of it,) in this instance, any more than in that of  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri at first.

Now were no more known of the history or of the nature of the Phoenix cycle than simply the fact that it took its rise, in a certain year, at the mean vernal equinox and even at the supposed moment of the sun's entering Aries and coming to the meridian also; and that it had a special reference from the first to the recession of the tropical points in the natural year; we could not have necessarily inferred from this fact that it had any particular connection with the stars: for the phenomenon of the precession itself is first and properly referrible to this recession of the tropical points, and only secondarily and through that to the change in the apparent places of the stars.

But if it was also understood that the date of the first Phoenix cycle was also the date of the first attempt ever made, (as far as any thing is known to the contrary,) to form the stars themselves into groups or constellations; an attempt which issued out at last in the formation of  $\zeta\omega\delta\iota\alpha$ , (figured representations of the signs of the ecliptic themselves;) it must then begin to be suspected that the idea of such a period as this of the Phoenix cycle could not have been conceived independently of any reference to the stars in general. And if it was further known that the first of these collections of stars themselves was that which we have just described, the leading or foremost, in the sense of most easternly, star of which was standing at this very time on the vernal colure, or somewhere scarcely to be distinguished from it; and was rising, and culminating, and setting with the sun; the most sceptical would be compelled to infer

from this fact that this group must have been expressly fixed upon to represent the first of these constellations, out of regard to its position on the ecliptic, and to its relation to the sun, and to the natural or tropical year, at the time.

Now these are facts which we hope to submit to our readers, accompanied with the proper proofs, as soon as we come to explain the origin of the lunar mansions of the Egyptians, and the connection of those mansions with the Phoenix period of the Egyptians also. And these facts being established; we think we are justified in inferring from them that the change in the apparent places of the fixed stars produced by the constant action of the precession, which had now reached the extent of an entire sign at the epoch of the Phoenix cycle, could not have escaped the observation of the Egyptians; and that they must have paid an express attention to it in fixing on the epoch of their Phoenix cycle itself. The inference from this fact, with regard to the law of the precession itself, would be reciprocal; viz. That if a star was now standing on or near to the vernal colure, which 2157 years before was standing 30 degrees, or nearly so, west of it; precession in 2157 years must have amounted to 30 degrees: and therefore its average annual rate must have been what we have deduced from this accumulated effect in 2157 years; viz.  $50''\cdot069,541^*$ .

\* Dr. Edward Bernard (doctor of medicine) Fellow of St. John's college Oxford, and Savilian professor of astronomy there, 1673, who appears to have been very well acquainted with the writings of the Arabians in their own language, particularly their astronomical ones, (see Bailly, *Astronomie Mod.* i. liv. vi. § xxvi. 246, 247,) must have found it recorded in some one or other of the works of this description, which he had examined, that the priests of Egypt were familiar with the phenomenon of the precession, and estimated its annual rate at  $50''\ 9''' \frac{2}{3}$  or  $50''\ 10''$ : (see Bailly, *Astronomie Ancienne*, *Éclaircissements*, Liv. v. § xi. 403: *Astronomie Indienne*, chap. viii. § xiii. 218, 219.) And this, if true, would be the most exact expression for it, which has been transmitted from antiquity, and from any quarter, (see Bailly, *Astronomie Indienne*, ch. vi. § ii. p. 154:) and it will be observed that it differs only  $0''\cdot097$  from that which we ourselves have obtained in the manner just explained. This rate of precession  $50''\cdot069,541$  is as nearly as possible =  $50''\cdot07$ : and  $50''\cdot07$  according to Mr. Ideler is the mean of the precessions assumed by Delambre, Piazzi, Hornsby, and Zach, respectively: see Ptolemy, iii. "Recherches" &c. p. 33.

SECTION III.—*On the probable motives to the institution of the Phoenix cycle; and on the end designed by it.*

That the idea then of the Phoenix cycle could have been irrespective of any reference to the stars, or that the positions and aspects of the stars also must not have been critically taken into account both in the principles and in the details of the first Phoenix cycle; it does not seem possible to suppose, contrary to the testimony of the facts which have just been pointed out. Yet we are not of opinion that this was the only or even the principal moving cause of the conception and introduction of the cycle itself: for its history, from this time forward, demonstrates that whatsoever connection it might have with the stars, and in what manner soever it might be referred to the stars both at first and afterwards, it had a much nearer and closer connection with the natural year, and a much more direct and perpetual reference to the recession of the tropical points in that year.

The measure of the period of the cycle, assumed from the first, as we have seen was 500 years. In 500 years, as our supplementary Tables shew, the change produced by precession, in the apparent places of the fixed stars, is  $6^{\circ} 57' 14'' \cdot 771$ ; which would be equal in time to seven days and a little more: but the change in the places of the cardinal points on the ecliptic, the effect of recession in the natural referred to the mean Julian year, produced in the same time, amounts only to 3 days, 21 hours, or to 4 days at the utmost. While therefore the apparent places of the stars were liable to advance  $7^{\circ}$  or 7 days in the course of one of these periods; the places of the tropical points were liable to fall back only 4 days or 4 degrees at the utmost.

Now, A. M. 2158 B. C. 1847, for the meridian of our tables, we had the mean vernal equinox,

	h. m. s.		
	April 8	12 47 52·8	
500 years' recession	...	.. .. + 3 21	
Mean vernal equinox, A. M. 1658 B. C. 2347.	April 12	9 47 52·8	

We thus recover the mean vernal equinox of the year after the deluge, (just 500 years before the first Phoenix cycle,) from that of the first year of this cycle: and our general tables, A. M. 1658 B. C. 2347, will shew this to be correct.

It would thus appear that between the mean vernal equinox for a given meridian, A. M. 2158 B. C. 1847, and the mean vernal equinox for the same meridian, just one Phoenix period previously, there would be four days' difference, within three hours of mean time only; and this differs so little from four days exactly that it may be assumed at four days. On this principle, the recession of the tropical points in one Phoenix period, cyclically reckoned, might be estimated at four days. So that if the mean vernal equinox, A. M. 2158 B. C. 1847, for the meridian of Heliopolis, was falling out critically at noon on a certain day; then it must be supposed that just 500 years before, A. M. 1658 B. C. 2347, for the same meridian it was falling out critically at noon on a certain day also: and consequently, if the Phoenix cycle had come into being A. M. 1658 B. C. 2347, its epoch must have been fixed to April 12 at mean noon, or April 11 at mean noon, at that time, just for the same reason as to April 8 mean noon, or April 7 mean noon, A. M. 2158 B. C. 1847.

It is not necessary to suppose that the exact date of the mean vernal ingress the year before or the year after the deluge was still remembered in Egypt, 500 years afterwards: though we would not venture to say that even that might not have been the case. But we *may* suppose it was still remembered there, that in the last year of the existence of the antediluvian world the mean sun entered the first point of Aries more than half way between midnight and sunrise; and in the first year of that of the postdiluvian, it did so more than midway between sunrise and noon. Still more reasonably may it be supposed it was distinctly remembered that both the year before and the year after the deluge the ingress of this sun into the vernal quarter was four days later than in the first year of the Phoenix cycle; and that, if it was April 7 or 8 at this time, it was April 11 or 12 at that.

The year of the deluge so fell out in the Julian cycle of leap-year that the same equable date still agreed to the same Julian, both in that year and in the year after it: and in each it so happened, as our tables shew, that the equable Thoth 23 reckoned from midnight corresponded to the



Julian April 11, and the equable Thoth 24 to the Julian April 12: the latter of which was the true date of the mean vernal equinox in each of these years, but the former, according to the Phoenix rule, might have been reckoned to be so too. We may well suppose that it would be long remembered among the descendants of the survivors of the deluge every where, and especially in Egypt, that the last mean vernal ingress, the last natural annual first term of the existence of the old world, and the first of that of the new, had both fallen on the equable Thoth 23 or 24.

An ancient Egyptian calendar, in the hieroglyphical character, is preserved in the British Museum; of which an account was given in the Dublin University Magazine, in the number for August 1846, by some one well versed in the mysteries of hieroglyphics: from which we learn that the 23d of Thoth in the equable Egyptian calendar, for some reason or other, was reckoned a good day *throughout*: a distinction which does not appear to have been accorded to many days in this calendar besides. Could we concur in the opinion of the author of that account respecting the antiquity of this calendar; we might appeal to its testimony in favour of the estimation in which the 23d of Thoth was held almost at the epoch of the first Phoenix cycle itself. But though we cannot and do not concur in this opinion, we are far from thinking it improbable that this favourable character of the 23d of their Thoth was of long standing among the Egyptians; and that, could it be traced up to its origin, it would ultimately be found resolvable into the fact, that this was the day which tradition had handed down among the Egyptians as that of the beginning of the new, the better, the more auspicious, and the more permanent, state of things, dated from the proper epoch of annual mundane time, the mean vernal equinox of the year after the deluge: and virtually too as the epoch of the entire series, succession, and decursus of their Phoenix periods themselves. For though the equable date which corresponded to April 7 at mean noon, A. M. 2158 B. C. 1847, as our tables shew, was Tybi 21; and that which answered to April 11 at mean noon, A. M. 1658 B. C. 2347, was Thoth 23; we are not aware of any distinction assigned to the equable Tybi 21: but that some-

thing peculiar did mark and discriminate Thoth 23 is attested by this hieroglyphical calendar; the antiquity of which, as we hope to shew hereafter, is something considerable in itself, though not so great, by many centuries, as the learned author of the account relating to it would make it. The estimation of this day in Egypt, from time immemorial, is explained, if it was actually the equable date of the mean vernal equinox, according to the Phœnix rule, in the first year after the deluge; and virtually the equable epoch of the whole cycle of Phœnix periods themselves.

To return therefore to the question which we are considering at present, the probable motive of the institution of the Phœnix cycle, and the end which was contemplated by it; we are decidedly of opinion that this institution is ultimately to be traced to the fact that in the course of the 500 years of mean natural, or of mean Julian, annual time which had elapsed since the descent from the ark, the cardinal points in the mean tropical year had receded *four* days, or might be assumed to have receded *four* days, in the mean Julian exactly; and to the inference thence deducible, that they must be liable to recede four days in every such term of years perpetually. From this it would follow that, howsoever exactly these points might have been defined and laid down at the beginning of one such period of 500 years, and howsoever fixed and invariable they might be considered for the decursus of one such period; yet at the end of one such period they would require to be revised and readjusted, if they were not permanently to get into disorder, and into a state of disproportion, of the calendar reckoning of such things to the truth of nature, amounting to four days at least.

It appears to us therefore, that the most probable explanation of the institution of this cycle, and of the end or purpose which it was intended to answer, is *this*: To establish a civil or positive form of the celestial sphere, which as long as it was continued in use should be considered the antitype or representative of the natural one: To limit the duration of this conventional sphere, the substitute of the natural, to the period of 500 mean natural or mean Julian years: To define, and adjust, and lay down, the

cardinal points of this sphere, at the beginning of its proper period, with all possible care and exactness in conformity to the truth of nature; and that having once been done at the beginning of the period, to leave the sphere, so defined and delineated, in undisputed possession of the heavens for the duration of one such period; but at the end of that period to consider it antiquated and out of date; and therefore to go through the same process again, by laying down another sphere of the same kind; or, what would come to the same thing in effect, by revising, reforming, redressing the details of this, and making them as true to nature at the beginning of this second period of 500 years, as they had been at that of the first.

Such, to the best of our own judgment; is the true view of the nature and final end of this celebrated period of antiquity. It was imagined and conceived for the sake of the sphere—it was never applied except in connection with the sphere: it was tantamount to the sphere itself. It never meant any thing but an edition of the sphere, or a revision of a former edition of the sphere. It defined, it measured, and it constituted, the duration of a positive or conventional form of the sphere, purposely substituted for the sphere of nature, for a certain length of time; but no longer. It had consequently necessarily much to do with the tropical year, and much with the Julian; but not necessarily with the sidereal. It might be connected with that too, but still it must be only secondarily, and through its connection with the former. We shall see hereafter, we trust, that it was connected *de facto* with the sidereal as well as with the tropical year and the Julian; and that this very connection is one of its most remarkable peculiarities: but we shall also see notwithstanding, that even this was only for the sake of its connection with the tropical year and with the Julian; and for the better and more effectual attainment of the end proposed by it in reference to those two years.

If however this is a correct view both of the original conception and of the final end of the Phœnix period, we must expect to find the matter of fact conformable to it: viz. That the Phœnix cycle and the sphere among the Egyptians were actually so connected, that every fresh Phœnix cycle on this

principle must have been accompanied with a fresh edition of the sphere; and that whatsoever was the number of actual Phœnix cycles among the Egyptians, the same must have been the number of spheres, or of revisions of the sphere, among them also. This, we say, is so justly and obviously the ultimate issue to which our premises lead, that we could not possibly object to the truth or falsehood of our conclusions being submitted to this *one* test; Whether there are actually more Phœnix cycles among the Egyptians on record, than editions of the sphere? or more editions of the sphere than Phœnix cycles? or whether they had ever a fresh Phœnix period without a fresh accompanying edition of the sphere? We are willing ourselves to abide by the result of this test: and all which we would stipulate for, preliminary to its application, is simply that, if our readers consider it only a fair and a reasonable test, they too should stand by the same result; and if we succeed in proving that every Phœnix cycle among the Egyptians was in reality the date of an accompanying sphere, which lasted as long as that cycle itself, but no longer, that they should be willing to allow the view which we have thus proposed of the nature and design of the cycle itself from the first to have been sufficiently substantiated and confirmed.

The point then which we shall have to consider from this time forward is the history of the Egyptian sphere; that is, the different modifications of the primitive sphere as made by the Egyptians: whether these were more in number than their Phœnix periods; and whether for every fresh Phœnix period there was not also a fresh modification of the sphere. And we must begin with ascertaining the state of the case in this respect first in connection with the first Phœnix cycle, that of the epoch itself, A. M. 2158 B. C. 1847.

SECTION IV.—*On the first modification of the primitive sphere in Egypt at the epoch of the first Phœnix cycle. i. Graduation of the Egyptian sphere from the first point of Aries.*

As we ourselves had occasion to remark in a former part of our work<sup>p</sup>, the ancients observe that there is necessarily



neither a first nor a last point in a sphere. Yet every sphere, in the technical or secondary sense of that term, that is, every artificial delineation of the actual circle described by the sun in the heavens, especially as the cycle of the seasons also, must have both a proper beginning and a proper end; and must have all its intermediate points, particularly the cardinal ones, (those which determine the ingresses into the several quarters of the natural year,) well defined, and accurately discriminated one from another. The testimony of antiquity is unanimous that the Egyptian sphere was graduated from Aries: its zero, or starting point, was the first point of Aries. The sphere of Aratus, copied from that of Eudoxus, began in Cancer. He describes its origin himself in the following terms<sup>1</sup>:

Ζωῖδιον δέ ἐ κύκλον ἐπὶ κλησιν καλέονσι  
τῷ ἐνὶ Κάρκινός ἐστι Λέων δ' ἐπὶ τῷ καὶ ὑπ' αὐτοῦ  
Παρθένος, κ', τ. λ.

On which the Scholiast observes: *Διὰ τί δὲ ἀπὸ τοῦ Καρκίνου ἤρξατο, καὶ ταῦτα τῶν Αἰγυπτίων ἀεὶ ἀπὸ Κριοῦ λαμβανόντων τὴν ἀρχήν*<sup>r</sup>; In like manner Hyginus<sup>s</sup>: *Sed Aratus non, ut reliqui astrologi, ab Ariete duodecim signa demonstrat, hoc est vere incipiente; sed a Cancro, hoc est ipsa æstate.* The sphere of Meton, of Calippus, of Eudoxus, in a word, all the spheres or Parapegmata of the Greeks of which any thing is known for certain, in like manner began their reckoning of the signs from Cancer: but the sphere of the Egyptians, it seems, always did so with Aries. And even when they themselves, in after-times, had transferred the *natale mundi* from the vernal equinox to midsummer, and to the heliacal rising of Sirius, yet they never ventured to alter the arrangements and details of their sphere in conformity to any novel hypothesis of that kind.

Now, as we argued before, the first point, or true zero, of the sphere, under such circumstances, must either have been arbitrarily assumed, or out of deference to the matter of fact. Supposing it known that time itself, as measured or measurable perpetually by the motions of the heavenly

<sup>1</sup> *Phænomena*, 544.

<sup>r</sup> Cf. ad 569.

<sup>s</sup> *Poeticῶν Astronomicῶν*, Lib. iv. cap. v. p. 467.

bodies, began at a certain season of the year; the motions of the heavenly bodies which thus constitute and measure time must be supposed to have begun at the same season too: and if the motions of the heavenly bodies (the sun, the moon, and the stars) were all known to have begun in a certain season of the year; who would think of delineating and describing those motions perpetually except from the same season of the year? If the epoch of the heavenly motions was the first point of Aries, it must be evident to common sense that the epoch or zero of the sphere must be the first point of Aries too: and it must have been a palpable affront to men's own feeling of propriety, as well as a flat contradiction of the appointment of nature and of the truth of things, to assume it any where else.

Let us observe in what manner the ancient astronomers express themselves on this point. Διόπερ καὶ τοῦ ζωδιακοῦ μηδεμίας οὔσης φύσει ἀρχῆς ὡς κύκλον, τὸ ἀπὸ τῆς ἐαρινῆς ἰσημερίας ἀρχόμενον δωδεκατημόριον, τὸ τοῦ Κριοῦ, καὶ τῶν ἄλλων ἀρχὴν ὑποτίθενται, καθάπερ ἐμφύχου ζώου τοῦ ζωδιακοῦ τὴν ὑγρῶν τοῦ ἔαρος ὑπερβολὴν προκαταρκτικὴν ποιούμενοι, καὶ ἐφεξῆς τὰς λοιπὰς ὥραστ', κ', τ. λ. The recognition of the first point of Aries as the proper beginning of the sphere, and as if by common consent, is plainly enough intimated in these words; but the reason assigned for it is little better than an absurdity: and had it really had any thing to do with the designation of the beginning of the zodiac, it must have led men to fix on Aquarius or Pisces, not on Aries; for those signs, not Aries, are the rainy signs, (especially in the east,) in which the watery principle might most properly be said to be predominant: and in the east one or other of these is more properly the beginning of spring than Aries itself.

Observing again, that some one of the four cardinal points was most properly to be assumed as the beginning of the year, Ptolemy proceeds<sup>u</sup>: Ἐνταῦθα μέν τοι τις ἀπορήσειεν ἂν ἥδη

<sup>t</sup> Ptolemy, Tetrabiblus, i. p. 8. περὶ τῆς τῶν ὡρῶν . . . δυνάμεως. Norimbergæ 1735. 4to. Cf. the Commentary of Proclus, lib. i. cap. xii. Τοῦ οὖν ζωδιακοῦ κύκλου ὡς κύκλου μηδεμίαν φύσει ἀρχὴν ἔχοντος, ἀρχὴ τῶν ὅλων ὑποτίθεται τὸ ἀπὸ τῆς ἐαρινῆς ἰσημερίας ἀρχόμενον δωδεκατημόριον (τὸ) τοῦ Ὑ. προκαταρκτικῆς γινομένης ἀρχῆς τῆς τοῦ

ἔαρος ὑγρότητος ἐν τῷ ζωδιακῷ ὥσπερ ἐπὶ ἐμφύχου ζώου . . . ὑποτιθέμενοι οὖν ἀρχὴν τὸ ἔαρ ἐφεξῆς τὰς λοιπὰς ὥρας τοῦ ἔτους συνάπτομεν κ', τ. λ. Lugd. Bat. ex officina Elzeviriana, 1635.

<sup>u</sup> Tetrabiblus, ii. p. 23, 24. περὶ τῆς τοῦ ἔτους νομηνίας. Confer the Commentary of Proclus, lib. ii. cap. xi. περὶ τῆς νομηνίας τοῦ ἔτους.

τίνι τῶν τεσσάρων ὡς προηγουμένῳ χρήσαιο. κατὰ μὲν οὖν τὴν ἀπλὴν καὶ κυκλικὴν φύσιν οὐδὲν αὐτῶν ἔστιν ὡς ἐπὶ (corr. ἀπὸ) μιᾶς ἀρχῆς προηγούμενον, κέχρηται δὲ οἱ περὶ τούτων γράψαντες ἐνὶ τινι, ὑποθέμενοι διαφόρως ἑκάστῳ τῶν τεσσάρων ἀρχὴν, κατὰ τινας οἰκέλους λόγους καὶ φυσικὰς συμπαθείας ἐνεχθέντες. καὶ γὰρ ἔχει τῶν μερῶν τούτων ἕκαστον ἐξαίρετόν (τι) ἀφ' οὗ ἂν ἀρχὴ καὶ νέον ἔτος νομίζοιτο εἰκότως. τὸ μὲν ἑαρινὸν ἰσημερινὸν διὰ τε τὸ πρῶτον τότε μείζονα τὴν ἡμέραν τῆς νυκτὸς ἄρχεσθαι γίνεσθαι, καὶ διὰ τὸ τῆς ὑγρᾶς ὥρας εἶναι, ταύτην δὲ τὴν φύσιν, ὡς καὶ πρότερον ἔφαμεν, ἀρχομέναις ταῖς γενέσεσι πλείστον ἐνυπάρχειν. τὸ δὲ θερινὸν τροπικὸν διὰ τὸ κατ' αὐτὸ τὴν μεγίστην ἡμέραν ἀποτελεῖσθαι, παρὰ δὲ Αἰγυπτίοις καὶ τὴν τοῦ Νείλου ἀνάβασιν καὶ κυνὸς ἄστρου ἐπιτολὴν σημαίνειν (συμβαίνειν). τὸ δὲ μετοπωρινὸν, διὰ τὸ κατ' αὐτὸ γεγονέναι πάντων ἥδη τῶν καρπῶν συγκομιδὴν, τότε δὲ ἀπ' ἄλλης ἀρχῆς τὸν τῶν ἐσομένων σπόρον καταβάλλεσθαι. τὸ δὲ χειμερινὸν τροπικὸν, διὰ τὸ πρῶτως ἄρχεσθαι τότε τὸ μέγεθος τῆς ἡμέρας ἀπὸ μειώσεως αὐξήσιν λαμβάνειν.

These remarks however apply only to the different beginnings of the civil year, as fixed or as capable of being fixed for such reasons as these to one or other of the quarters of the natural year. Such explanations could have nothing to do with the graduation of the sphere; nor can it be inferred that the sphere itself was attached to any point but the first point of Aries even among the Egyptians, because some form or other of the civil year among them was attached, for such a reason as is here assigned, to midsummer and to the rising of Sirius.

The most important testimony to the rule of the Egyptian sphere is the following of Macrobius: “*Ægyptiorum enim retro majores, quos constat primos omnium cælum scrutari et metiri ausos*” ... hanc rationem cur Arietem, cum in sphæra nihil primum nihilque postremum sit, primum tamen dici maluerint, prodiderunt<sup>x</sup>. aiunt incipiente die illo qui primus omnium luxit, id est, quo in hunc fulgorem cælum et elementa purgata sunt, qui ideo mundi natalis jure vocitatur, Arietem in medio cæli fuisse: et quia medium cælum quasi mundi vertex est, Arietem propterea primum inter omnes habitum, qui ut mundi caput in exordio lucis apparuit.”

<sup>w</sup> *Somnium Scip.* i. xxi. 108.

<sup>x</sup> 110, 111.

It must be admitted indeed that this description, as we shall better perceive hereafter, is first and properly intended of the state and phenomena of the heavens at the epoch of the last revision of the sphere ever actually made by the Egyptians; viz. in B. C. 848: but we shall also see that it is ultimately to be referred even then to the supposed state of the case at the epoch of the first modification of the sphere itself. We are justified therefore in regarding this account merely as the traditionary description of the first and original delineation of the sphere, whensoever that was made.

No one can read this description of Macrobius and not perceive that it is virtually the same with what we have already produced from Manilius; viz. that as Aries is supposed in this description to have been in the meridian at the beginning of things, so was Aries on the meridian at the epoch of the Phoenix cycles: and as the former coincidence determined the rule of the sphere, so did the latter the rule of the Phoenix period. It appears to us that there can be only one reasonable inference from this concurrence of distinct authorities and of distinct testimonies; viz. that the first Egyptian sphere, thus traditionally delineated, according to Macrobius, and the first Phoenix cycle, reckoned from the ingress of the sun into Aries at noon, according to Manilius, began together; and consequently that the proof of the point which we have undertaken to establish, the connection of the Phoenix cycle with a corresponding modification of the sphere, in this first instance of all, would so far be complete: for that Macrobius' sphere is intended of the first and oldest conception and representation of the kind among the Egyptians themselves, and consequently might go as far back as the epoch of the first Phoenix cycle, though it could not go further, there is no occasion to prove. It is implied in his own account of it. Yet this is not all that we have to say in proof of this first point.

SECTION V.—ii. *The first and oldest form of the sphere in Egypt was laid down in xv<sup>s</sup> partibus.*

The first conclusion then which may be assumed with respect to the Egyptian sphere is that the oldest conception and delineation of that kind among them went back to the



epoch of the Phœnix cycle, and came into being along with the Phœnix period. The next is that this original scheme of the sphere in Egypt, like every other in that country down to the latest times, bore date in the first point of Aries: and therefore, to speak in the technical language of the astronomers of old, must have been laid down in *primis partibus*.

The next position, which may be advanced and established with reference to the same things, will appear to be contradictory to the latter of these two; and yet it will be seen, in due time, to be both true itself and nevertheless consistent with that. This position is that the first and oldest representation of the sphere in Egypt, that which actually coincided with the epoch of the Phœnix cycle and actually came into existence along with the first Phœnix period, was laid down in *quintis decimis partibus*.

We infer this distinction from the following fact. There was one degree in every sign of the Egyptian sphere, which went by the name of the "sacred degree:" and this was the xvth in each. We learn this from the commentary of Theon, on that passage of the Phænomena in which Aratus describes the constellation Hydra, and its position relatively to those in its neighbourhood <sup>γ</sup>.

Ἄλλ' ἔτι γάρ τε καὶ ἄλλο περαιοθεν ἔλκεται ἄστρον,  
 Ὕδρην μιν καλέονσι, τὸ δὲ ζῶντι ἑοικὸς  
 ἦνεκὲς εἰλεῖται· καὶ οἱ κεφαλὴ ὑπὸ μέσσον  
 Κάρκινον ἰκνεῖται· σπείρη δ' ὑπὸ σῶμα Λέοντος·  
 οὐρὴ δὲ κρέμαται ὑπὲρ αὐτοῦ Κενταύροιο·  
 μέσση δὲ σπείρη κρητὴρ πυμάτῃ δ' ἐπίκειται  
 εἶδωλον Κόρακος σπείρην κόπτοντι ἑοικὸς <sup>z</sup>.

The Scholiast's remarks on this passage are as follows: Λίαν γὰρ καὶ πάνν ἐπὶ μήκιστον ἐκτέταται ἡ Ὕδρα, ὥς τριῶν ζωδίων μοίρας ἐπέχουσα, τοῦ τε Καρκίνου καὶ τοῦ Λέοντος καὶ τῆς Παρθένου. τοῦτο γὰρ τὸ ζῶον οἱ Ἕλληνες Ὕδραν ἐκάλεσαν ὅπερ Ἑρακλῆς κατηγωνίσασθ' οἱ μέντοι Αἰγύπτιοι Νεῖλον εἶναι τὸ ἄστρον τοῦτο λέγουσι· καὶ λόγους πιθανοὺς προφέρουσιν. ἡ γὰρ

<sup>γ</sup> Ad 443. Cf. Germanicus Cæsar, Aratea Phænomena, 423-429. Festus, Phænomena, 891-901. <sup>z</sup> Cf. Hyginus, Poetic. Astron. lib. iii. xxiii. Leo: xxiv. Virgo.

κεφαλὴ τοῦ ζωδίου ἐστὶ περὶ τὴν ἱερὴν μοῖραν τοῦ Καρκίνου <sup>a</sup>,  
κ', τ. λ.

Now what can be meant here by the *ἱερὰ μοῖρα τοῦ Καρκίνου*, except what Aratus himself designated as the *middle* of Cancer? And if what each meant, one by the *middle* of Cancer, the other by the *sacred degree* of Cancer, was the same thing, then there was a *sacred degree* in Cancer, and that sacred degree was situated in the *middle* of Cancer; and therefore was either the 15th or the 16th of Cancer. Now we know nothing of the 16th degree of Cancer to imply that it was sacred in any sense; but we do know a certain fact of the 15th degree of Cancer, which necessarily implies that it was sacred, and sacred to the moon. We know that it was that degree of Cancer which was supposed to have been occupied by the moon, when the moon itself came into being. And as there was a degree in Cancer sacred to the moon for that reason; so was there one in Leo sacred to the sun for the same reason: and as the former was the 15th of Cancer, so was the latter the 15th of Leo. In short, we know that there was a degree in each of the other signs also, sacred to one or other of the planets for a similar reason; and that this was the 15th degree in each of those instances also. So that nothing can be more certain or unquestionable than that, according to the astrology of antiquity, there was one degree in every sign sacred *κατ' ἐξοχὴν* and above the rest, but for the same reason in each; and that degree the 15th of each.

The question then is How is this particular estimation of the 15th degree in each of the signs of the zodiac to be explained and accounted for? We answer first, by the fact that in the first and oldest delineation of the sphere the cardinal points were laid down in the 15th degrees. Secondly, by the fact that the 15th degrees, having thus been assumed as the cardinal points in the original scheme and representation of the sphere, never ceased to be regarded as the principal and cardinal points ever after, and as the standards of reference in every subsequent change and modifica-

<sup>a</sup> For the rest of the commentary, see *supra*, Diss. xiv. ch. i. sect. iii. xii. p. 9.

tion of the sphere of later date. Thirdly, by the fact that the first and original conception and delineation of the sphere, thus laid down in the 15th degrees, being as old as the epoch of the first Phœnix cycle; when the doctrine of the *genitura mundi* was introduced into Egypt, (at a much later point of time, as we shall see hereafter,) nothing could be more natural, or more probable *a priori*, than that such should be supposed to have been the state of the case at the beginning of things; i. e. that as the moon, and the sun, and the five planets, must necessarily have occupied some position or other in the different signs of the ecliptic, from the moment of their existence itself, so this position should have been assumed to have been the 15th degree of each.

If however distinct and positive testimony that the oldest representation of the sphere, known to the ancients, was actually laid down and graduated in the 15th degrees, is still considered a desideratum; we find it in the following passage of the *Isagoge ad Aratum* of Achilles Tatius<sup>b</sup>: Βούλονται δὲ τροπὴν αὐτὸν (τὸν ἥλιον) ποιῆσθαι οἱ μὲν περὶ τὰς ἀρχὰς, οἱ δὲ περὶ ὀγδόην μοῖραν, οἱ δὲ περὶ ιβ', οἱ δὲ περὶ ιε' τοῦ Καρκίνου. Four different schemes of the sphere, and each on a different principle, are here enumerated, each of which we may have occasion to notice in due time; but at present we are concerned only with the fourth, i. e. the last mentioned; according to which the summer solstice (that is, the second of the cardinal ingresses in the tropical year) was laid down in the 15th degree of Cancer.

Now no one will suppose that, if the summer solstice in a given instance was assumed and laid down in the 15th degree of its proper sign, the vernal equinox must not have been laid down in the 15th degree of its own sign too, and the autumnal equinox in the 15th of its proper sign, and the winter solstice in the 15th of its own also. There must be three signs complete in every scheme of the celestial sphere, between the ingress of one of the four quarters, and that of the next. A division of the sphere is consequently thus recognised and attested, which was graduated from the 15th degrees of the different signs. Achilles Tatius knew of such a sphere; and he knew of three others besides, each of them

<sup>b</sup> § 23. *Uranologium*, 146. A.

laid down in a lower degree than the 15th: but he knew of none laid down in any higher degree than the 15th. This sphere then must have been the oldest of all. A lower and lower graduation in such a progressive scheme of analogous spheres as this is necessarily an argument of spheres of a later and later date. The sphere of the highest power is necessarily the most ancient of all. This sphere therefore must have been that which came into existence along with the first Phoenix cycle. Each was the oldest of its kind, known to the astronomers of former times; and therefore they must have been the same: and as this latter was graduated from the 15th degrees the former must have been so too.

SECTION VI.—iii. *Combination of a double sphere, a fixed and a moveable one, in the first modification of the sphere in Egypt.*

It has never indeed been unknown to learned men, or to astronomers whose attention has been directed to such subjects as these; that the Egyptians must some time or other have had among them a form of the sphere, in which the cardinal points were actually laid down *in quintisdecimis partibus*: and that this was the oldest conception and delineation of such a thing as the sphere, of which any traces were to be discovered either in Egypt or any where else. This fact is so generally acknowledged by all chronologers, and by all the learned among men of science, that we might very well have dispensed with any formal proof of an assumption which no one was likely to call in question. It is absolutely certain however that, even with respect to this sphere, (acknowledged to have existed in antiquity as it is,) and with respect to its peculiar constitution, the real state of the case never has been known to the learned in general, or to astronomers in particular; not even to those who have undertaken to write the history of ancient astronomy, and therefore have been obliged, for the sake of their subject itself, to inquire into the nature of the spheres of antiquity, and into the principles on which they were constructed: or rather, so far as we have been able to discover to the contrary, the truth on this point is so far from having been known by any in modern times, that it has not even been suspected.



The explanation of this point involves one of the most curious and interesting, and yet most important and most instructive, particulars in the history of the sphere from first to last : and it is more calculated to give modern astronomers a just and correct idea of the kind and degree of proficiency, even in their own science, which must have been possessed by the astronomers of old, (especially by those of Egypt,) than any thing else which has yet come to light. And yet it admits of being stated in a very few words. The sphere of the Egyptians, as first conceived and delineated at the point of time which we are considering, (the epoch of the first Phoenix cycle among them,) was so contrived and so laid down as to consist of a double sphere; of an immoveable sphere, and of a moveable one ; of a sphere attached to a fixed and invariable epoch, and of a sphere attached to a shifting and variable one ; this fixed epoch being a certain Julian term, which we shall explain by and by; the variable one the point of the mean vernal equinox : this fixed sphere being graduated perpetually from the first degrees, the moveable one from that degree of the immoveable sphere in which the true mean date of the vernal equinox was falling for the time being ; which degree, in the first instance of all, was the 15th of the immoveable sphere ; in subsequent instances of the same kind was some lower degree of the same sphere, corresponding to the recession of the mean vernal equinox in terms of the fixed sphere meanwhile.

The sphere of the Egyptians then, from the epoch of the first Phoenix cycle downwards, *de facto* was not a simple but a compound sphere. It was made up of two spheres, one of which served as a standard of reference for the other perpetually, and one of which was so referred to the other perpetually. One of these was to all intents and purposes the sphere of nature, the tropical sphere, in which there was nothing artificial ; the other, though not absolutely independent of natural relations, was altogether positive and conventional in comparison of this, and was much more artificial than natural.

SECTION VII.—iv. *The fixed sphere of the Egyptians a modification of the primitive sphere of Mazzaroth.*

In order however to the further explanation of the relation of these two spheres to each other, we must remind the reader of what we have already said concerning the primitive sphere, or sphere of Mazzaroth; as the simple and abstract conception of the sphere itself; as nothing but the delineation of the actual motion of the sun in the ecliptic, through the different seasons of the natural year. In such a sphere there was necessarily a reference to the division of the ecliptic into signs, and to the division of signs into degrees; but not to ζώδια or figured representations of the signs; nor even to the stars, or to collections of the stars, except such as lay in or about the path of the sun itself, and were qualified by their position at first to mark out, and to point to, the divisions of the ecliptic into signs.

If the motion of the sun in the heavens were uniform, and if the length of the natural year were an invariable quantity, and there was no such thing as the recession of the cardinal points on the plane of the ecliptic; it is evident of such a sphere that, once laid down and delineated in conformity to the actual phenomena of the heavens at a given time, it would represent them perpetually, with the same truth and exactness as at first. And though such a perpetual type of the actual motion of the sun, and of the natural year, which should always be true to both, in the nature of things is impossible; it is manifest that a simple and abstract conception of the sphere, such as we mean by the sphere of Mazzaroth, if imagined and represented at all, must be of this description; must be something supposed to be invariable, and *mutatis mutandis* virtually applicable at all times; and at a given time actually so. If there could be such a thing as an artificial and conventional form of the sphere, which might be considered the idea or type of the sphere in the abstract, and as much applicable to one actual form of the sphere as another; it must be this sphere of Mazzaroth.

In the next place it cannot, we think, be unreasonable to assume that it was known to the Egyptians of this time that the two stars, βήτα and ζήτα Tauri, which, at the epoch of the Phoenix cycle, A.M. 2158, B.C. 1847, were observed to

be 30 degrees east of the vernal colure, 2157 years before, A. M. 1, B. C. 4004, were standing on or about that colure itself: and that  $2\tau$  Arietis, which was standing at this time on the vernal colure, at the beginning of things was  $30^\circ$  west of that point. It must have been known then that, if the sun was in conjunction with  $\beta\eta\tau a$  and  $\zeta\eta\tau a$  Tauri, at the beginning of things, on April 24 or 25; it must have been in conjunction with  $2\tau$  Arietis on March 24 or 25; the distance between these stars on the ecliptic being  $30^\circ$ , and the length of the last month in the natural year being 31 days at least.

It is evident then under such circumstances, that could the Egyptians be supposed to have gone back from the state of the heavens, at the epoch of their first Phœnix cycle to the state of the heavens at the beginning of things; they must have found the same star at that time standing on the first degree of the last of the signs of the ecliptic, which at this time was standing on the first of the first, viz.  $2\tau$  Arietis. And though the Julian term, which defined and declared the position of this star relatively to the tropical sphere of their own time, was April 8 at noon, at the beginning of things it must have been March 24 or 25 at noon; or it might easily be supposed to have been so. The excess of the mean sidereal year, of the standard assumed in our Tables, in 2157 years, over the actual Julian year, would be 13 days 23 h. 16 m. 57 s., that is, very nearly 14 days exactly. So that if the sun was in conjunction with  $2\tau$  Arietis, for the meridian of Heliopolis, *de facto*, April 8 at mean noon, A. M. 2158, B. C. 1847; it must have been in conjunction with it for the same meridian 2157 years before, March 25 at mean noon\*; which by the Phœnix rule might be assumed as March 24 at mean noon.

Now though a fixed natural type of the sphere of Mazza-

\* *Supplementary Tables of the Fasti Catholici.*

	d.	h.
2000 mean Julian years	= 730,500	0
100	= 36,525	0
50	= 18,262	12
7	= 2,556	18
2157	= 787,844	6
	add	6 hours
	787,844	12
In integral days	= 787,844	
	U 2	

roth must have been an impossibility, a fixed Julian type was very possible; and in such a fixed Julian type, adapted to the first and original delineation of the sphere, the date of the first month, (the celestial Krion,) being supposed to be April 24 at noon, that of the last month, the celestial Icthyon, (assumed to be 31 days long,) would be March 24 at mean noon. And if such were supposed to have been the case at the beginning of things, it must be supposed to be still the case at the epoch of the Phoenix cycles. In a fixed Julian type of the sphere of Mazzaroth, the celestial Krion being once attached to April 24 at noon, and the celestial Icthyon to March 24 at noon, each must continue so attached ever after, as long as the Julian type itself remained unaltered.

Now this being once known and admitted, that in a fixed and perpetual (that is, a strictly Julian) type of the sphere of Mazzaroth itself, conceived to have gone back to the beginning of things even from the epoch of the Phoenix cycle, the proper Julian date of the first term of the first month, the first of the celestial Krion, according to the proper Phoenix rule must have been April 24 at mean noon; and the proper Julian date of the first term of the last month, the last of the celestial Icthyon, according to the same rule must have been March 24 at mean noon; we have all the explanation which can be necessary of the phenomenon into which

	d.	h.	m.	s.
2000 mean sidereal years =	730,512	17	18	54.908
100 =	36,525	15	15	56.745
50 =	18,262	19	37	58.373
7 =	2,556	19	4	6.972
2157 =	787,837	23	16	56.998
2157 Julian years =	787,844			
Excess of 2157 mean sidereal over 2157 Julian years =	13	23	16	56.998
			14 days.	
Mean vernal equinox B. C. 4005 .. ..	April	24	18	11 9.6
Eleven months .. ..	+	334	19	19 46.2
First of Icthyon .. ..	March	25	13	30 55.8
Equation of the centre .. ..	—	1	1	57 16.2
True ingress into Icthyon .. ..	March	24	11	33 39.6
			—	15 44
At Heliopolis .. ..	March	24	11	17 55.6
Excess of 2157 mean sidereal .. ..	+	13	23	16 57
over 2157 mean Julian years .. ..	April	7	10	34 52.6
The length of the 12th month B. C. 4005-4004 was 31d. 12h. 26m. 20s. 4.				



we are inquiring; viz. that of the rise of two spheres in Egypt, at the epoch of the first Phœnix period, one attached to a fixed and invariable date, the other to a moveable and variable date; and of the reasons on which this conjunction of two such spheres must have been founded. The natural sphere requires its proper artificial representative, for civil and practical purposes at least. The signs of the ecliptic themselves must be considered and treated as so many months of a calendar of a certain kind. The language of all chronologers, and of astronomers also, has been determined accordingly. A celestial calendar has been every where recognised just as much as a civil one: a celestial Krion, just as much as a civil March—or whatsoever may have been the name of the month in the civil calendar in which the mean vernal equinox has usually fallen out: a celestial Tauron, as much as a civil April: and so all round the year. A fixed type of the natural sphere is not possible; but a fixed Julian type, as the positive or conventional substitute of the natural, is very possible; and having been once received in that capacity, it must be treated ever after as invariable, or at least for a certain length of time; much longer than the natural type of the same thing, of which it is supposed to be the facsimile, possibly could be.

It is not necessary however to suppose that such a Julian type of the primitive celestial calendar, or of the sphere of Mazzaroth, existed among mankind from the first: nor even that the Julian year itself had yet been any where applied to the measurement of annual time, down to the epoch of the Phœnix cycle. It is as easy to carry back a fixed Julian type of any kind, as to bring one down; and, though the idea of such an invariable Julian representative of the sphere of Mazzaroth itself might have been conceived in Egypt for the first time only at the epoch of their first Phœnix period; it must have been just as evident to them at that time, as it is to ourselves at present, that April 24 at mean noon being assumed as the proper date of the celestial Krion in such a type, from the first, March 24 at mean noon must have been the proper corresponding date of the celestial Ichthyon from the first also.

Now there is no reason to suppose that this last fact, the

proper Julian date of the first term in the sphere of Mazzaroth, was not well known in Egypt even at the date of their first Phoenix period itself; viz. that as this sphere bore date from the first on the mean vernal equinox, so the original date of the mean vernal equinox was the Julian April 24 or 25. It was very possible for them to recover the mean vernal equinox, or the first of the celestial Krion, at the beginning of things, and at the beginning of the sphere itself, from the mean vernal equinox of their own time. Nothing was necessary for that purpose, but to go back four Phoenix periods of 500 years each, and they would infallibly get to the mean vernal equinox of A. M. 158 from that of A. M. 2158. In one such period of 500 years the tropical points recede 3 days 21 hours: consequently in four they recede 15 days 12 hours. Hence supposing the mean vernal equinox, for the meridian of our tables, A. M. 2158 B. C. 1847 to have been

					April 8	12	47	52.8
Add	..	..	..	..	15	12	0	0
And you recover the mean vernal equinox								
for the same meridian, A. M. 158					April 24	0	47	52.8

which our general tables for that year shew to be correct. And this for the meridian of Heliopolis in Egypt, 15 m. 44 s. west of that of our Tables, would be nearly April 24 at midnight exactly.

Now, if we may be permitted to call this fixed Julian type of the primitive sphere of Mazzaroth henceforward by the name of the sphere of Mazzaroth itself; and the true primitive sphere of Mazzaroth from the first, down to this time, by that of the tropical sphere; it appears, from what has just been shewn, that at the epoch of the first Phoenix period the first month of this tropical sphere was falling almost critically in the middle of the last month of this sphere of Mazzaroth. Let it be assumed, for instance, that the last month of the sphere of Mazzaroth was 31 days long, and bore date March 24 at mean noon: then 14 days from the beginning of this month would bring us to April 7 at mean noon, the first term of the first month of the tropical sphere, according to the Phoenix rule: and 17 days more exactly would bring us to April 24 at mean noon; the first term of the sphere of Mazzaroth. So that the first term of the first

month in the tropical sphere, according to the Phoenix rule, the true representative of the first term in the mean natural year, the mean vernal equinox itself, at this particular juncture of time was falling as nearly in the middle of the last month of the sphere of Mazzaroth as it possibly could; just 14 days complete after its beginning and just 16 days complete before its termination.

If then at this juncture of time also the Egyptians conceived the idea of such a periodical revision and readjustment of the sphere as we have supposed; forasmuch as the necessity of some standard of reference, by means of which the recession of the cardinal points might be measured perpetually, would be obvious; it may well be supposed that this want would appear to be most easily and most effectually supplied by this combination of the sphere of Mazzaroth with the tropical sphere. And in this case the only important question would be, what term in the sphere of Mazzaroth was the most proper to be fixed upon, as this perpetual standard of reference; and whether the first term of that sphere, as it had stood at first, and might be supposed virtually still to stand, April 25 or April 24 at mean noon, or some other.

If this question had been under consideration at the beginning of things, and at the common epoch of origination of both these spheres, A. M. 1, it might perhaps have admitted of doubt whether the standard of reference to the tropical sphere should not have been taken from that term of the sphere of Mazzaroth, with which the tropical sphere itself was coinciding at the time. And at the common epoch of origination of both these spheres the first term of the one was coinciding with the first of the other, and both with the same natural and both with the same Julian date. Yet even in this case it must soon have come to be perceived, that since the effect of recession was such as to carry the first term of the tropical sphere further and further away from the first in the sphere of Mazzaroth, the relation of the two spheres to each other must be such that it could never be said with propriety the tropical sphere was laid down in terms of the sphere of Mazzaroth; but on the contrary, the sphere of Mazzaroth in terms of the tropical. And this must have been inconsistent with the principle on which it

was proposed to adjust them one to the other. It would have inverted the relation of the one to the other; and would have made the tropical sphere the standard of reference to the sphere of Mazzaroth, instead of the contrary. It must be self-evident that, if a fixed sphere was to be combined with a moveable one, (the sphere of Mazzaroth, with the tropical the sphere of nature's appointment, which must be moveable in comparison of the other,) this could not be done on any consistent principle, except by assuming the first term in the former *earlier* than the first in the latter: an assumption which would allow scope for the recession of the latter, agreeably to its natural law perpetually, and yet be compatible with the relation of the former to the latter also as its proper standard of reference perpetually, notwithstanding.

We have no doubt that this consideration, which was so just and reasonable in itself, and yet was so necessarily involved in the very idea of combining two such things as a fixed and a variable type of the sphere in a common representation, would have due weight with the Egyptians, when this question was actually under discussion at the epoch of the first Phoenix period. They would see that the time for adopting the first and original epoch of the sphere of Mazzaroth, as the standard of reference for the tropical sphere, was long since past; and this being out of the question, it would easily be perceived that there was no alternative now left, except to go back 30 degrees, or one sign in the sphere of Mazzaroth, and in the natural order of the recession of the cardinal points in the tropical sphere, in search of what they wanted; that is, from April 24 at mean noon, the first of the celestial Krion, to March 24 at mean noon, the first of the celestial Ichthyon. And it would no doubt very materially contribute to determine them to do this, that at this very time the first term of the tropical sphere was falling as nearly as possible half way between the first of Krion and the first of Ichthyon in the sphere of Mazzaroth; and consequently that, in fixing the first term of their immoveable sphere to the first of Ichthyon, in order to serve as a perpetual standard of reference for the first term of the tropical or moveable sphere, they were only falling in with the actual order and course of things, as it had been going on ever



since the beginning, and was still going on before their eyes.

And this consideration itself may possibly lead to a yet more curious and interesting discovery, as to what the Egyptians really had in view when they instituted their Phoenix cycle. We have seen that in one Phoenix period the recession of the tropical points amounted to 3 days 21 hours, and in four periods to 15 days 12 hours. We have seen too that, by going back with this recession of four periods, it was easy to recover the mean equinox of A. M. 158 from that of A. M. 2158, the epoch of the first Phoenix period; and the latter being assumed to have been April 8 at mean noon, the former was April 24 at midnight. Now the true mean equinox A. M. 1. itself, at the beginning of things, actually fell on April 25 at midnight: and April 25 being the date of the first term in the tropical sphere at the beginning of things, it must have been the date of the first in the sphere of Mazzaroth at the same point of time also: and April 25 being the first of Krion in the sphere of Mazzaroth, April 24 would be the last day of Ichthyon in the same also.

Now it is self-evident that even had the epoch of the sphere of Mazzaroth A. M. 1. been set back from April 25 at midnight to March 25 at midnight; that is from the first of Krion to the first of Ichthyon, in order to admit of the association of the tropical sphere with this sphere of Mazzaroth; the graduation of this tropical sphere in terms of the sphere of Mazzaroth never could have begun with propriety until the *first* degree of the tropical was falling at least in the *last* degree of the sphere of Mazzaroth; in other words, until the mean vernal equinox had been brought by the recession from the *first* day of Krion to the *last* day of Ichthyon; from April 25 to April 24. Now this was not the case, strictly speaking, before A. M. 158. We think it therefore exceedingly probable, that the Egyptians purposely went back four Phoenix periods, even from the epoch of the Phoenix cycle, A. M. 2158, in order to find what must be considered the true first term of such a succession as that of these periods from the first; viz. the point of time when the *first* term in the tropical sphere was first falling on the *last* term in the sphere of Mazzaroth. It is certain that, on the

principles of the Phœnix period, they would not find this time either sooner or later than A. M. 158: and in that year they would find it, and for the meridian of Heliopolis almost critically at midnight, April 24.

On the same principle, it was easy to calculate that after the lapse of 2000 years, or four Phœnix periods also from the epoch, A. M. 2158, in which the recession would amount as before to 15 days 12 hours; if the mean vernal equinox was falling April 7 at noon at the epoch of the first Phœnix period, it might be expected to be falling March 23 at midnight at the epoch of the 5th period, A. M. 4158. And March 23 at midnight, A. M. 4158, being assumed to be the first term in the tropical sphere, and the last in the sphere of Mazzaroth, supposed to bear date March 24 at midnight; it is manifest that the state of the case with regard to the relation of the two spheres to each other would be just the same at the end of four Phœnix periods from the epoch, A. M. 4158, as at the beginning of four Phœnix periods before the epoch, A. M. 158; and nothing would be necessary now to accommodate one to the other, and to prepare them to accompany each other for another period of eight Phœnix cycles, or 4000 years, in the same way as before, except to set back the epoch of the sphere of Mazzaroth from the first of Ichthyon March 24 at midnight, to the first of Hydron, Feb. 21 or 22 at midnight.

It cannot be denied that these are curious coincidences, and calculated to give us a totally different view of the Phœnix cycle, and of the use and purpose which it was intended to fulfil in the original scheme of its authors, from what at first sight would appear. And they derive some support and countenance from the eight Phœnixes which have been actually found all together on the monumental sculptures in Egypt: though more than that number so represented and at once, it does not appear, have yet been discovered. For these eight Phœnixes would be equivalent to 4000 years: and they might be purposely intended to represent the length of time in which the recession of the tropical sphere in the sphere of Mazzaroth would amount to an *entire sign*; for which consequently the sphere of Mazzaroth was competent to serve as a standard of reference for the

tropical sphere, without the necessity of any adjustment of one to the other, beyond what must be supposed to have been made 4000 years before; but longer than which it was not\*. And this is probably the true explanation of the meaning of these eight Phœnixes; that they represent 4000 years; the measure of the recession of the tropical sphere through one sign both of its own sphere and of the sphere of Mazzaroth: twelve of which, it is evident, would amount to a complete circle of the ecliptic. This subject however deserves a further and a more particular consideration: but we shall not be prepared to enter upon it, until we have first explained the connection of the sphere of Mazzaroth with a corresponding type of the Julian calendar, introduced into Egypt along with it at the epoch of the Phœnix cycle also.

SECTION VIII.—v. *The Mazzaroth or celestial calendar of the Egyptians a Julian calendar.*

The reader will probably have anticipated the conclusion, spontaneously resulting from the premises which have just been laid before him; viz. that the Egyptian sphere of Mazzaroth must have been associated with some form of the calendar, and that calendar the Julian. It does not appear, from any thing which has yet come to light, that it could have been associated with a sidereal calendar: and yet it may still be true that even at this early period of time (the epoch of their first Phœnix period) the Egyptians were as well acquainted with the sidereal as with the solar or tropical year. The Arabian astronomers at least have left it on record, that the Egyptians, from time immemorial, had the mean sidereal year of 365 d. 6 h. 11 m. among them<sup>c</sup>: and though the learned in modern times have scrupled to receive this statement on the authority of the Arabians merely, yet

\* The period of 8000 years, or this period of 2000 years, and four Phœnix cycles, four times repeated, appears to have had a mystical meaning among the Egyptians; as we may collect from the Commentary of Proclus on the *Timæus* of Plato, (i.) A. 104 = 45. B: Τοῖς μὲν Ἀθηναίοις τὰ ἐνακισχίλια ἀριθμὸν ἀποδέδωκεν . . . . τοῖς δὲ Σαῖταις τὸν ὀκτακισχίλια κατὰ τὰ ἐν τοῖς ἱεροῖς γράμματα, τῇ χιλιάδι μετρῶν τοὺς βίους τῶν πόλεων· ταύτη γὰρ λέγεται καὶ οἱ δαίμονες τὸν χρόνον μετρεῖν, ὥς φησιν ὁ φιλόσοφος Περφύριος.

c Cf. Bailly, *Astronomie Anc.* v. § xv. 149. *Éclaircissements*, v. § xi. 403.

to us there appears to be nothing incredible in it, at least with respect to the fact in general; viz. that the mean sidereal year was known to the Egyptians, and that they had a mean sidereal standard which was very near the truth. We have seen reason to believe that many things came to the knowledge of the oriental writers on these subjects, especially among the Arabians, relating to the state of science among the ancient Egyptians, and to various curious and interesting facts of great antiquity, which were never known to the Greeks, and have never been transmitted to posterity in any way but through the Arabians.

We are entirely of opinion however that the calendar, attached to their sphere of Mazzaroth and involved in the principles and details of such a sphere, was Julian; and was formed on the assumption of the mean length of the Julian year, 365 days six hours. And though such a statement as this naturally suggests the inquiry whether this was the first idea of the Julian year ever conceived in theory, or ever reduced to practice, among mankind; we do not think it necessary to enter on that further question: not merely because there are no data, known to ourselves, by means of which it might be decided, but because it makes no difference to the particular illustration of this sphere of Mazzaroth, and to its connection with a calendar of this kind, whether the calendar itself was something new, and now introduced for the first time, or something which had long been known and in use before. On this question every one is at liberty to think as he pleases. All that we shall say about it is That there is no evidence to be met with any where either of the knowledge of the Julian year in theory, or of its application in practice, in any quarter of the world, before the date of the first Phoenix cycle of the Egyptians; evidence at least which is authentic and trustworthy: but from the epoch of this cycle downwards there is such evidence, not only in the calendar thus associated with the sphere of Mazzaroth, but also in a distinct type of the Julian calendar, the first which appears in Egypt itself, attached to the first day of the cyclical Thoth, æra cyclica 2159, in the fifth month of which equable year the celestial calendar of Mazzaroth also took its rise.

The first of Thoth this year, as our calendar shews, was



falling Nov. 17 at 18 hours according to the primitive rule, Nov. 18 at midnight according to the Julian, A. M. 2157 B. C. 1848; and we shall see, we trust, hereafter that the Egyptians had a fixed type of the Julian year, older than that which came into being along with their Sothiacal period attached to the epoch of July 22, B. C. 1350; older too than any thing else of the same kind which is still to be met with among them; yet attached to this Julian date of Thoth 1, æra cyclica 2159 Nov. 18 A. M. 2157 B. C. 1848. The proof of this point however is necessarily reserved for the present.

Now it could not have been assumed by the Egyptians, as the principle of this association of a proper Julian calendar with the sphere of Mazzaroth, that the mean Julian year was the same with the mean natural year; because, in that case, there could have been no distinction between their sphere of Mazzaroth and their tropical sphere, or none which they themselves could have supposed. Their Mazzaroth must have been their tropical sphere; or their tropical sphere their Mazzaroth. The year of nature on this supposition never could have varied, in their opinion, from the standard of the mean Julian year. It is certain that they could not have fallen into the mistake of confounding two such different things as the sphere of Mazzaroth and the tropical sphere; nor consequently have confounded the mean Julian year with the mean natural. But they were at liberty to assume that the mean Julian year was the nearest approach to the form of equality to the mean natural year which could possibly be substituted for it: and they were also at liberty to assume that the difference between them was so slight that at a given time or for a prescribed length of time both might be considered the same. And these assumptions they must have made; because they are both involved in the first principles of their Phœnix period, and in the relation of their two spheres, the sphere of Mazzaroth and the tropical sphere, one to the other.

They may be supposed therefore to have proceeded on the same principle with respect to their Phœnix period, on which we ourselves have done with respect to the Julian types of our Fasti. The only difference between our method and theirs would seem to have been this; that we redress and readjust our Julian types at the end of one of our Julian

periods, they revised and reconstructed their Phoenix type at the end of one of their Phoenix periods: and their Phoenix period was nearly four times as long as our Julian period. It does not follow from this fact that they must have thought the natural and the Julian year capable of agreeing, without standing in need of readjustment one to the other, for so long a term as 500 years. On the contrary it appears plainly, from their administration of the period itself, that they knew as well as ourselves that the difference between the natural year and any Julian type of the natural in 500 years would amount to 3 days 21 hours. But they might very well be allowed to assume that even for 500 years the natural year and its Julian type might be suffered to go on in conjunction, subject to any conventional arrangement, affecting them both alike, which might have been agreed upon: That such a business as the formal revision and readjustment and republication of the sphere was not to be made too common, nor too often repeated: That it was not desirable to have a fresh edition of the sphere every 125 years, or four times in one Phoenix period, when even one was capable of serving every practical use and purpose which could be proposed by it even for 500 years, if necessary.

Besides this, something, and probably much, would be allowed to the accidental coincidence which had determined the first Phoenix epoch to A. M. 2158 B. C. 1847; and thereby had fixed and defined it just at the distance of 500 years from the deluge: particularly if the fable of the Phoenix was invented at the same time; which we may well suppose to have been the case. This fabulous conception had nothing to do with the sphere; but it had much to do with the period. It finds its own explanation in the event which happened just one of these periods before its own invention. For what is the Phoenix of the fable but the world before and after the flood? Deprive the fable of any connection, through its own cycle, with the historical date of the actual restoration of things after the deluge; and nothing is left, on which the idea of such a fable and such a cycle could possibly have been built, but the merest and most extravagant fiction. We are persuaded however that the original Phoenix of the fable was really the old world before, and the new world after, the flood: and every one

must allow that, regarded in that point of view, it had an historical foundation which made it as just and real in point of fact as ingenious and beautiful in the conception. In this case, the idea of the fable may be said to have been suggested by the period; and not the period to have grown out of the fable: and yet both having been associated from the first, neither could be dispensed with ever after. If the fable was to be perpetuated, such as it had been at first conceived, the period must be perpetuated also.

It is very possible too that the idea which the Egyptians proposed to realize, by means of this association of a tropical and moveable sphere with a fixed and immoveable one, was something truly grand and magnificent; such as was never contemplated by any race of astronomers before or after: yet one too which the nature of the civil year to which both they and the rest of mankind had been accustomed from the first might have suggested to them. They were no doubt familiar with the fact that the equable year was liable to recede continually in the natural year, and yet in the course of time, from that very liability itself, and from its constant operation in the same way, that it must be brought round to a state of agreement with it again. And being now aware of the proportion of the mean natural to the mean Julian year also, they could not but perceive that the former too was liable to the same tendency to recede on the latter, though at a much slower rate; and that as there was a period of restitution of the equable year in terms of the natural, of very considerable length, so there was a period of restitution of the mean natural in terms of the mean Julian, of still greater length.

Now this was very possibly what they proposed to realize by the combination of their sphere of Mazzaroth with their tropical sphere perpetually: this *annus magnus*, most properly so called, or great cycle of restitution of the cardinal points of the mean natural year to exactly the same state of relation to the mean Julian year, in which they were placed either at the beginning of things, or at the beginning of their Phœnix cycles. The recession of the tropical sphere in terms of the sphere of Mazzaroth being assumed at 30 degrees in space, 31 days in time, every 4000 years, or 8 Phœnix cycles; on

this principle, the measure of this *annus magnus* might be supposed to be  $4000 \times 12$  or 48,000 years, 96 Phœnix cycles. And this might be the period which they proposed to realize by their succession of Phœnix cycles. It is calculated to give us a lively idea of the greatness of their conceptions. Nor can it be said with truth that the supposition of a period like this, as ever having been contemplated by them, is altogether a gratuitous assumption. The eight Phœnixes of the monumental sculptures appear to us to attest it as far as they go; that is, for the first four thousand years, or twelfth part, of this grand *annus magnus*. And if we are not mistaken, we shall probably meet with other facts, as we proceed in our inquiries, which cannot be explained except on the admission of the actual conception of even such a great period as this.

With regard to the details of the sphere of Mazzaroth, we have seen every reason to conclude that, though the Egyptians were aware that the lengths of the different quarters of the natural year, at the epoch of their Phœnix cycles, were not the same; yet for the use of this fixed type of the sphere of nature, which we have agreed to call the sphere of Mazzaroth, and as laid down in terms of a purely Julian calendar, they considered themselves justified in assuming them as nearly as possible of an uniform length; and in reckoning each cyclically in a certain number of integral days. And as their calendar of Mazzaroth itself, (being Julian in principle,) must have its cycle of leap year; they assumed it to consist of 365 days every three years; and of 366 days every fourth. Each of the quarters of this year therefore consisted of 91 days: and one quarter, in the common years of the cycle, consisted of 92 days, and two quarters, in the leap-years of the cycle, did so too. The quarter, to which they gave this extra day in the leap-years of the cycle, we have seen reason to conclude was the fourth or the winter quarter; and that to which they gave it in every year of the cycle alike was the first quarter, or spring quarter. For some day *extra* must be given to some one quarter in such a scheme as this, over and above the common length of 91 days; and it could not be given to any with so much propriety as to the first or the spring quarter; because the natural length of that quarter, (as the



Egyptians were no doubt aware,) ever since the beginning of things had always been the greatest of all, and was so still at the epoch of the first Phœnix cycle, and continued to be so long after the institution of the Phœnix period.

Such appears to the best of our own judgment, from the facts which have come to our knowledge, to have been the original scheme and distribution of this Julian calendar, introduced along with the Egyptian sphere of Mazzaroth. There would be little difficulty therefore in representing it agreeably to these hypotheses : and in our opinion it stood as follows.

*Julian calendar of the Egyptians, adapted to the sphere of Mazzaroth, A.M. 2158, B.C. 1847, at the epoch of the first Phœnix period.*

Perpetual type of the calendar of Mazzaroth, March 24 at mean noon.

First quarter 92 days.

B. C. 4004.	B. C. 1847.	Days		
Ithyon	Krion	31	March 24	noon.
Krion	Tauron	30	April 24	
Tauron	Didymon	31	May 24	

Second quarter 91 days.

B. C. 4004.	B. C. 1847.	Days		
Didymon	Karkinon	31	June 24	noon.
Karkinon	Leonton	30	July 25	
Leonton	Parthenon	30	August 24	

Third quarter 91 days.

B. C. 4004.	B. C. 1847.	Days		
Parthenon	Zygon	30	September 23	noon.
Zygon	Scorpion	31	October 23	
Scorpion	Toxon	30	November 23	

Fourth quarter 91 days. Leap-year 92 days.

B. C. 4004.	B. C. 1847.	Days		
Toxon.	Ægon	30	December 23	noon.
Ægon	Hydron	30 or 31	January 22	
Hydron	Ithyon	31	February 21 or 22	

SECTION IX. — vi. *Confirmation of the Julian epoch of the sphere of Mazzaroth, March 24, by distinct proofs.*

We shall now proceed to offer some proofs that the Julian epoch of the Egyptian sphere of Mazzaroth, in the above scheme, March 24 at mean noon, is rightly assumed: premising only that even in this case March 24 at mean noon, according to the Phoenix rule, is still to be considered the same thing as March 24 at 18 hours, according to the primitive rule.

i. then: The most direct and decisive proof of this kind is the matter of fact itself; viz. That two spheres having been combined in such a scheme as this, a moveable and an immoveable one, the former laid down in the 15th degree of the latter, yet bearing date from the mean vernal equinox also; the Julian date of the immoveable sphere is necessarily determined by the Julian date of the mean vernal equinox, laid down in the 15th degree of the immoveable sphere itself. For example, the epoch of both spheres being A. M. 2158 B. C. 1847; and the Julian date of the mean vernal equinox, for a given meridian, like that of Heliopolis, at this point of time being April 8 at noon, and that of the true being April 7 at 6 h. 38 m. 58 s. A. M. mean time<sup>d</sup>; if the former of those dates coincided with the 15th degree of an immoveable sphere, March 25 at mean noon must have coincided with the first: if the latter coincided with the 15th degree, March 24 must have coincided with the first. Unless therefore any of these things can be disproved, either that the epoch of the combination of these two spheres was that of the Phoenix cycles A. M. 2158 B. C. 1847; or that the moveable sphere was laid down at first in the 15th degree of the immoveable, and yet in the article of the mean or of the true vernal equinox, for the meridian of Heliopolis, A. M. 2158 B. C. 1847; or that the mean or the true vernal equinox, for the meridian of Heliopolis, did actually fall on April 8 or April 7: there is no alternative except to conclude that the sphere of Mazzaroth, combined with this tropical sphere at the same time and on the same occasion, must have borne date 14 days before it, either March 25

<sup>d</sup> See supra, p. 240.

at noon, or March 24 at noon : between which we cannot hesitate to fix on March 24 at noon, as the proper Julian date of this sphere according to the Phoenix rule, corresponding to the proper Julian date of the other according to the same rule, in the first instance of all, April 7 at mean noon.

ii. It will be seen hereafter that, at the epoch of the third Phoenix period, the *first* degrees in the signs of the tropical sphere were observed to be falling on the *eighth* degrees of those of the sphere of Mazzaroth ; which was nothing more than the necessary effect of the relation of the two spheres to each other from the first, and of the operation of the law of precession meanwhile. It will also be seen that at this particular juncture of time, when the cardinal points in the moveable sphere were thus found to be falling on the eighth degrees of the immoveable one, an opinion came into vogue in Egypt, which might have existed elsewhere before that time, but does not appear to have been known, or at least to have been received, in Egypt until now. And from its introduction and reception among the Egyptians at this very time we may date the degeneracy of their astronomy ; which until then appears to have been the most sound and judicious, and probably the most perfect, of its kind, which existed any where in the ancient world.

The nature of this opinion may be briefly stated as follows : That the cardinal points of the tropical sphere, which were now observed to be falling on the eighth degrees of the sphere of Mazzaroth, would begin and continue to recede in terms of this sphere, until they came to the first degrees of the same ; but as soon as that was the case, instead of receding in terms of this sphere any longer, as before, they would begin to go back in it again, and continue to do so until they came to the eighth degrees again : and having returned to this term of the sphere of Mazzaroth as before, they would not continue to advance in this sphere any longer, but would again begin to recede in it, as they had done before, until they again came to the first degrees as before. And this kind of alternate recession of the tropical points from the eighth degrees of the sphere of Mazzaroth to the first degrees, and alternate regression from the first degrees to the eighth, it was supposed would go on perpetu-

ally. Such was the new theory and the new doctrine concerning the relation of the two spheres to each other, which came up in Egypt at the time in question ; though the necessary proofs of the truth of this representation of it cannot be produced at present.

Now, it will further appear hereafter according to the same accounts, from which we learn the nature of this opinion as stated in the above representation, that this recession of the cardinal points of the tropical sphere from the eighth to the first degrees of the sphere of Mazzaroth was supposed to have reached its maximum, B. C. 158 ; that is, the first degrees of the tropical sphere, which at the epoch of the third Phoenix period were falling on the eighth degrees of the sphere of Mazzaroth, B. C. 158 were observed to be falling on the first. If then we know the Julian terms on which they were actually falling, B. C. 158, we know the Julian dates of the first degrees of the sphere of Mazzaroth.

Now, with respect to the first of these terms in the tropical sphere, it was necessarily the mean or the true vernal equinox. The tropical sphere associated with the sphere of Mazzaroth bore date perpetually from the first term in the natural year, the vernal equinox. According to our Fasti then, the date of the mean vernal equinox, B. C. 158, for the meridian of Jerusalem, was March 26, 16 h. 38 m. 38 s. 24 th ; and therefore for the meridian of Heliopolis, or of Memphis, was March 26, 16 h. 22 m. 54 s. 24 th : and the year before, B. C. 159, for the meridian of Jerusalem, it was March 26, 10 h. 49 m. 48 s. 0 th. for that of Heliopolis, or of Memphis, March 26, 10 h. 34 m. 4 s. 0 th ; which was still nearer to the point of noon, the proper epoch of the Phoenix cycle from the first. The mean date of the vernal equinox then in each of these years was March 26 : but the equation of the centre, at this time, amounting to one day and twenty hours, and being negative ; the true date was March 24, about 20 hours from midnight, B. C. 158, March 24 about 14 hours from midnight, B. C. 159.

Now this being *de facto* the state of the case, B. C. 158 or 159, that the Julian date of the vernal equinox, for the meridian of Heliopolis, (that is, the Julian date of the first term of the tropical sphere combined with the sphere



of Mazzaroth,) was falling on March 24; and yet the first term of the tropical sphere at this very time was coinciding or supposed to be coinciding with the first term in the sphere of Mazzaroth; this coincidence is or ought to be decisive what the Julian date of the first term in the sphere of Mazzaroth itself must have been, or at least must be supposed to have been, from the first. It could have been nothing but March 24. March 24 however, according to the Phœnix rule, would be reckoned from March 23 at noon. And it is necessary to attend to this distinction; because a given Julian term, like March 24 at noon, at the epoch of the first Phœnix period B. C. 1847, would be properly represented B. C. 158 not by March 24 at noon, but by March 23 at noon. March 24 at noon was the proper Julian date of the sphere of Mazzaroth before B. C. 672, but March 23 at noon, after it. It is also to be observed that, according to the opinion which we have just been explaining, the first degrees in the tropical sphere had reached the first degrees in the sphere of Mazzaroth, B. C. 158, on this Julian term March 24, and, according to the Phœnix rule, at noon; but the first degrees in the former did not yet totally coincide with the first in the latter, nor would they until by the effect of precession they had been brought from March 24 at noon to March 23 at noon: and when they had reached that point in the sphere of Mazzaroth, in the natural order of recession in the tropical sphere, they must either begin to go back, according to the theory which we have explained, or they must pass from the first term in the sphere of Mazzaroth into the last; which would be contrary to the assumptions and doctrine of the theory itself.

iii. Thirdly, a remarkable sentiment, attributed to Hipparchus, is found on record, as may be seen from the following observation of Columella's<sup>e</sup>: *Multos enim jam memorabiles auctores comperi persuasum habere longo ævi situ qualitatem cœli statumque mutari: eorumque consultissimum astrologiæ professorem Hipparchum prodidisse tempus fore quo cardines mundi loco moverentur.*

It is well known that Hipparchus was the first among the astronomers of the Greeks to discover the phenomenon of

<sup>e</sup> De Re Rustica, i. i. § 4.

the precession, which in Greek is expressed by the *Μεταπτώσεις τῶν τροπικῶν σημείων*: and that he was the author of a treatise on that subject itself, which is quoted by Ptolemy in his *Magna Compositio*. Such a work was very likely to contain a statement of this kind. Yet we are entirely of opinion that the true meaning of the observation, thus ascribed to him by Columella, would be altogether mistaken were it supposed to refer to nothing but the simple effect of precession. Precession draws back the cardinal points on the sphere; but not in respect of the natural year. Hipparchus was well aware that the natural year was an invariable quantity; and that there could be no such thing as the recession of the tropical points in respect of themselves. Or, whatsoever he might suppose in that respect, yet from the moment when he became cognizant of the nature and effect of the phenomenon of the precession, he could not fail to perceive that it must be something which had always existed, and always operated, and in the same way: and that if the *cardines mundi* were liable to be affected by any such cause of disturbance as that they must have always been so liable. It could not be any effect to come, or to be exemplified at any future time, which was the consequence of a cause like that; it must be something which had always been going on, and always been exemplified: it was in reality nothing more than the simple annual effect of the precession itself.

But the truth is that, by these *cardines mundi*, he did not mean the principal points of the moveable sphere, but the principal points of the immoveable one, the sphere of Mazzaroth: the principal points of that sphere, which, from the nature of the sphere itself, must be fixed and stationary, in contradistinction to those of the tropical, which for the same reason must be perpetually changing and shifting. It is a singular fact that Hipparchus was living and flourishing just about the time when by virtue of the law of precession, and of its unceasing operation, the first term of the moveable sphere was fast approaching to the first in the immoveable<sup>f</sup>: and it is a still more curious coincidence that, to judge from the recorded dates of his observations, he must have set himself to work to watch the effect of precession on the tropical

<sup>f</sup> Cf. Ammianus Marcellinus, xxvi. i. 70.

points, almost in the very year in which, according to the opinion lately explained, the first degrees in the tropical sphere were expected to reach that point in the sphere of Mazzaroth, which they might attain to, and with which they might coincide, but beyond which they could not pass. B. C. 158 was the year prescribed for this coincidence; and B. C. 162 is the date of the first observation of either of the equinoxes attributed to Hipparchus; and B. C. 159 that of the next  $\epsilon$ : and beginning in the first of these years, a series of observations, both of the vernal equinox and of the autumnal, is ascribed to him, which extends down to B. C. 128. It is another singular coincidence, that all this time, as our general tables shew, the vernal equinox was actually falling on the Julian March 24 or March 23; its proper Julian date all the time being March 24, one day earlier than the proper Julian date of the sphere of Mazzaroth, answering at this time to the original one of March 24; viz. March 23.

The distinction and yet the combination of these two spheres, the tropical and the sphere of Mazzaroth, which had so long been made and so long received among astronomers, could not be unknown to Hipparchus; much less the fact that one of these was necessarily attached to a variable term, the other to an invariable one. He was living just at the time when the two spheres were fast approaching to a state of absolute coincidence and of absolute equality, though they had not yet attained to it; when a collision was to be expected between the first term in the tropical and the first in the sphere of Mazzaroth; and when, if this latter did not give way to and recede before the former, that must pass beyond it, and the relation, which had existed until then between the two spheres, from that time forward must begin to be inverted.

We are persuaded that this, and this only, is the true explanation of the very remarkable observation which Columella attributes to Hipparchus. He had lived to see the time when the tropical sphere was fast encroaching on the fixed limits of the sphere of Mazzaroth: and though he did not survive to see the time when the first term of the one

$\epsilon$  See *supra*, Diss. xii. ch. ii. sect. ii. Dates of the *Magna Compositio*, vol. ii.  
410.

was actually occupied by the first of the other, it was easy for him to anticipate such a consummation, as the natural and necessary effect of the constant operation of precession, and in a very short time too; unless meanwhile the epochs or limits of the sphere of Mazzaroth were to be shifted *in antecedentia*, and set back again to the same distance behind those of the tropical, at which they must, or they might, have stood from them at first. What was this but to foresee, *tempus fore quo cardines mundi loco moverentur?*

We must conclude therefore that these *cardines mundi*, in the sense and reference in which and with which Hipparchus thus spoke of them, were the fixed epochs of the sphere of Mazzaroth. The same inference follows in this case as before; that the first term in the tropical sphere, in the time of Hipparchus, being scarcely distinguishable from the first in the sphere of Mazzaroth, if the former, in his time, was represented by March 24 at noon, or March 23 at noon, the latter must have been so too: in which case, its proper Julian representative from the first, for the reason already assigned, must have been March 24 at noon.

We have no doubt indeed that, were the truth on this point fully known, it would be found that Hipparchus was first induced to set himself, when he did, to watch the motions of the tropical points with so much care and exactness, because of the traditionary belief among astronomers of a fixed and invariable epoch, which had always served, and was still destined to serve, as a perpetual standard of reference for the tropical points themselves. It was easy to see that this could not be the case, unless the mean standard of the Julian year and the mean standard of the natural were absolutely the same. His observations appear to have been directed to the determination of this one point, whether the *ἐπουσία*, as he called it, the excess or epact of the natural year above 365 days, was actually greater or less than that of the mean Julian, viz. six hours, or just equal to it.

SECTION X.—vii. *Further confirmation of the Julian epoch in question, by the testimony of corrections of the calendar of later date than the Phœnix cycle: and by other proofs.*

With regard then to this question of the true Julian date



of the Egyptian sphere of Mazzaroth, March 24 at noon, down to B. C. 672, March 23 at noon, ever after; the proofs of the fact which have thus been adduced appear to us to leave no doubt concerning it. Still there are other arguments to the same effect, which, if not so direct and decisive as these, yet lead to the same conclusion and conspire to the same result. We might have dispensed with any further proof of the point itself: yet we do not think it right to pass these additional considerations over without submitting them to our readers; because they are calculated to serve other purposes besides that of contributing to illustrate and confirm this particular point.

i. It may well be supposed that, when the distinction of an immoveable sphere, attached to this particular date of March 24 or March 25, and of a moveable sphere, perpetually referrible to that as its standard, had once been made and brought into use in Egypt; the influence and authority of the precedent thus established in Egypt, and the preference shewn to this particular term, March 24 or March 25, by the Egyptians, would have the effect of making that be looked upon every where else as the fittest which could be selected to be the epoch of a fixed and invariable scheme of time: particularly as even the distinction thus made and established in Egypt could not be said to be something absolutely new; for this immoveable sphere even of the Egyptians was after all nothing but the primitive sphere, the Mazzaroth of all mankind, in a modified form and shape. Nor was the belief which recognised the first point of the vernal sign as the natural epoch of the sphere, because the natural beginning of time, or even this term, March 24 or 25, as a cardinal point in the sphere of Mazzaroth, confined to the Egyptians. We have seen every reason to conclude that a true chronology of the age of the world was long retained in other parts of the world, as well as in Egypt; and that the true natalitial epoch of mundane time, as well as original term of the sphere of Mazzaroth itself, April 25, was long as generally recognised every where else, as in Egypt<sup>h</sup>.

But be this as it may, though we know of no modification of the primitive calendar out of Egypt, which could lay claim

<sup>h</sup> See Dissertation ix. ch. iv.

to any such antiquity as the Phoenix cycle, we meet with reforms of that calendar, in the course of time, some nearer to some more remote from the epoch of the Phoenix cycle, in quarters distinct from Egypt, which are so clearly determined to one season of the natural year, the *spring*, and to one month of that season, the month of March, and to one day of that month, this Julian date of the Egyptian sphere of Mazzaroth, or some day which confines closely upon it; that we cannot doubt that they must have been purposely so determined to that season, that month, and that day, for the same reasons as the Egyptian sphere of Mazzaroth itself: and most probably out of deference to and in imitation of the example already set by the Egyptians in that respect. We will specify three cases of this kind; none of which in point of fact admits of being called in question.

i. The Phrygian correction of Midas: the date of which was March 31 B. C. 1301; a cyclico-Julian correction of its kind, but for that very reason necessarily confined within certain fixed and invariable limits, both in the natural and in the Julian year. The normal or rectified epoch of this calendar was March 31; but the stated date of the Phrygian mysteries, first instituted along with it and with the introduction of the two cosmogonic principles in the Phrygian theology, Attes and Cybele, answering to Osiris and Isis in the Egyptian, was March 25. Yet March 25 B. C. 1301 was not the date of the mean vernal equinox; but instead of that, April 3 or 4. But it was the recognised epoch of the Egyptian sphere of Mazzaroth, March 24 according to the Phoenix rule, March 25 according to the primitive: and that was sufficient to make the author of this Phrygian correction give it the preference to any other day in the year, as the most sacred in his own calendar, and as the first of the five, which he proposed to dedicate perpetually to the honour and service of his two cosmogonic abstractions, the male and the female, in their proper relation to each other, and to every thing else; and for the annual celebration of their proper rites upon them.

ii. The fact to which we briefly adverted on a former occasion<sup>i</sup>, respecting the successive corrections of the Indian

<sup>i</sup> Diss. vii. ch. i. ii. sect. vii. ii. vol. i. 581. Diss. ix. ch. iv. sect. vi. vol. ii. 85.

calendar, is very remarkable, and altogether without a parallel in the history of the calendar any where else from first to last. The first form of that calendar, distinct from the primitive, was cyclico-Julian and solar: and its epoch Sept. 25 B. C. 1306. Its next was lunar; and its epoch the *luna septima*, Oct. 1 B. C. 946. From this time forward, and setting out from this Julian term, Oct. 1, and this lunar term, the *luna septima*, the Indian astronomers did not desist to correct and reform their calendar in the same way every 247 years; until by dint of six successive corrections of the kind, they had advanced the head of their calendar from Oct. 1 B. C. 946, to March 22 A. D. 538: to which term, and in which year, they left it ever after attached, but destined to be regulated from that time forward, as it has been in fact ever since, not by a lunar, nor by a solar, but by a sidereal year of a certain kind.

In this interval of time they intercalated 173 days, in the shape of a month sometimes of 29 days, sometimes of 28 days in length, at the end of each of these periods of 247 years<sup>k</sup>. The statement of the result at last is sufficient to point out the object at which they were aiming all the time. It must have been gradually to advance the head of their calendar in the natural order of the year from October to March; and to some day in March about the 23d, the proper epoch of Mazzaroth A. D. 538, answering to March 24 at first. Their noctidiurnal cycle at this time, and long before, began at sunrise: and therefore they must reckon their epoch either from March 23 at 6 A. M. or March 22 at 6 A. M. They fixed on the latter, because they were obliged also, in the choice of the epoch at last, to have regard to the *luna septima* as well as to the solar or Julian date: and March 22 A. D. 538 was the *luna septima*, March 23 was the *luna octava*. That they were not looking at the vernal equinox in any part of this proceeding, but at something howsoever near to that yet altogether different from it, appears from the fact that the vernal equinox A. D. 538 was falling on March 19, the epoch which they fixed on was three days later, March 22.

iii. It has been already explained in general<sup>l</sup>, that the

<sup>k</sup> See Mr. Bentley's *Hindu Astronomy*, section ii. p. 34.

<sup>l</sup> Diss. vi. ch. v. sect. iii. vol. i. 505.

nundinal correction of the ancient Etrurians, and the decursus of Etruscan secular periods, were both attached to March 25 B. C. 860; i. e. to what may be considered at that time the epoch of Mazzaroth: and this too must be pronounced a remarkable coincidence, which can scarcely be resolved into accident; for no one could suppose that the decursus of such periods as these secular ones of the Etrurians could possibly have been fixed to a more appropriate epoch than the epoch of Mazzaroth. The first of the primitive Thoth too was falling on the same date at the same time; which only renders the coincidence more remarkable.

We have seen too<sup>m</sup>, that the people of Umbria in Italy, whom the ancients reckoned to be the oldest on the face of the earth, were said to make use of that peculiar rule of the noctidiurnal cycle of reckoning it from noon, the first origin of which we have traced to the Egyptians, and to the introduction of their Phoenix cycle. The name of these Umbri appears to have been a puzzle to the most learned and best informed of ancient times: and they had no better alternative left than to derive it from the Greek *ὄμβρος*—and so to make these Umbrians survivors of the deluge. The Phoenix cycle was closely connected with the deluge too: and those, who were distinguished by the use of the particular noctidiurnal rule of the Phoenix cycle, might possibly have some connection with the origin of the cycle too; which would do much to make them pass with the ancients for the children of the flood and of rain; quite as much as the similarity of their name to the Greek *ὄμβρος*.

Under this name of the Umbri however, we suspect a mystery to be concealed, the explanation of which would connect them at once with the Phoenix cycle and with the sphere of Mazzaroth. Every one must see that this name of Umbri is agreeable in all respects to the analogy of the well known names of some of the months in the Roman calendar, September, October, November, December. The name of the first month in a calendar, which had all the names of its months cast in a mould like this, would be *Uni-ber*: and that would not differ from *Umber*. We hope some time or other to shew that this affix of *Ber*, compounded with the cardinal



Roman numerals, *septem, octo, novem, and decem*, in these particular instances, is Egyptian, and came into Italy first from Egypt; yet not before the epoch of the Phoenix cycle.

Tradition has perpetuated the fact that an Egyptian colony some time or other migrated to Italy, under the conduct of the Egyptian Hercules. The Greek name of this Egyptian Hercules was Χῶν or Χῶνς: and among the Egyptians he was the personification of the lunar mansions: the Hercules Lunus, or Thoth Lunus of after-times. Hesychius has a gloss: Ἑρμοσχοίνιος γῆ· ἢ Αἴγυπτος τὸ πρότερον οὕτως ἐκαλεῖτο<sup>n</sup>: for which Stephanus Byz. in Αἴγυπτος, reads Ἑρμοχόμενος: but in our opinion we ought to read in both Ἑρμο-χώνιος: the land of Ἑρμόχωνς, i. e. of this Thoth-Hercules, or Thoth-Lunus, or Hercules-Lunus, both patron and tutelary deities in an eminent manner of Egypt in particular.

Χῶνην· τὴν Ἰταλίαν οὕτως πάλαι ἔλεγον, ὥς φησιν Ἀντίοχος ὁ Ξενοφάνους, ἐν τῷ περὶ Ἰταλίας<sup>o</sup>—Χῶνες· ἔθνος Ἰταλικόν· τὸν Ἡρακλῆν φασι κατὰ τὴν Αἰγυπτίων διάλεκτον Χῶνα λέγεσθαι, παραγενέσθαι δὲ εἰς Ἰταλίαν, καὶ ἀπ' αὐτοῦ Χῶνας ὀνομασθῆναι τὸ ἔθνος<sup>p</sup>. These Chones of Italy, in our opinion, were nearest of kin to the Umbrians of that country too. Their name must have been derived from the Egyptian Chon: and as he was the Egyptian impersonation of the lunar mansions, which came into being along with the Phoenix cycle, these Chones of Italy must be later than both, yet connected with both; at least with the mansions, and with the sphere of Mazzaroth. Something must be allowed to conjecture in a matter of such antiquity and of such obscurity as this; but we should be of opinion that there was a calendar in existence among the Umbrians of Italy, which might be the same with that of Mazzaroth, or founded upon it; the names of which were composed of the Egyptian Ber, and the cardinal numbers, possibly those of the Egyptian language too, but which would be exprest in Latin by Uniber or Umber, Duo-ber, Tresber, and the like; and so give occasion, from this peculiarity of the reckoning of civil time among them, to their being called Umbrians themselves.

If such a calendar or such a type of the sphere of Mazza-

<sup>n</sup> Ἑρμοσχοίνιος.

<sup>o</sup> Hesychius, In Nomine. Cf. Strabo,

vi. cap. i. xiv. cap. ii. De Rhodo.

<sup>p</sup> Etymologicum M., in voce.

roth, as this, was actually in existence among the Umbrians, (near neighbours of the Etrurians;) it would be no wonder should even they have borrowed from it the epoch of the decursus of their sæcula. And yet it is far from improbable, much less impossible, that a correct primitive tradition, relating to the sphere<sup>q</sup> of Mazzaroth itself, might have been preserved among the Etrurians as low down as B.C. 860. It is at least a singular coincidence that the feast-day of Pales in Italy from time immemorial should have been attached to April 24, almost the primitive epoch of Mazzaroth itself, at least according to the primitive rule of the noctidiurnal cycle: for the Italian Pales, as we have already observed<sup>q</sup>, was there too only the impersonation of Nature; the *alma parens* or *magna mater*, from whom all existence and all life originally sprang, and by whom it was annually renewed in the vegetable and even the animal world. She was the Italian antitype of the Egyptian Isis, of the Grecian Demeter, of the Indian Durga, of the Cyprian Aphrodite, of the Phœnician Astarte, of the Phrygian Cybele, of the Lydian Kybebe, of the Babylonian Mylitta, of the Scandinavian Freya, or of any similar feminine conception of antiquity. It is another singular coincidence also that Romulus, meditating the foundation of the *urbs æterna*, as it was afterwards called, and having the choice of all the days in the year before him, should have thought none so proper for his purpose, none so auspicious and well-omened, as the feast-day of Pales, the *natale mundi*, April 24, itself.

The above are not all the corrections or modifications of the primitive calendar, of later date than the Phœnix cycle and sphere of Mazzaroth of the Egyptians, and in quarters remote from Egypt, the principles and details of which furnish strong internal evidence of a deliberate reference to this sphere, and to its details too: though they are all which we think it necessary to particularize at present. In the Bactrian correction of the elder Zoroaster, and in the scheme of Ghahanbârhâs connected therewith, April 25 was an important term: and the proper date of the creation in this cosmogony, beginning with that of the heavens, or element

<sup>q</sup> Diss. ix. ch. iv. sect. x. vol. ii. 102.

of fire, was attached to the Mazzaroth date of the summer solstice, June 24. In the Persian correction of Gjemschid, B. C. 702, the principal term was March 23; yet that was not the date of the mean vernal equinox, at that time; but one purposely substituted for it. The same motive and reference attached the second Arabian correction to March 22. Similar reasons determined the fixation of the Sidonian epoch to March 31, the Tyrian to March 18, that of Damascus, and of other parts of Syria, to March 27. No Julian month indeed appears to have been so often, and so deliberately preferred, as the month of March. We shall see proof hereafter, we trust, of Julian calendars in Egypt, in Libya, in Æthiopia, purposely attached to this month, and almost to the epoch of Mazzaroth in this month. The famous term of the 15th degree of Aquarius, in the Chinese calendar, was directly derived from the sphere of Mazzaroth. The same may be said of the similar term in the calendar of the Japanese. Go where we will, we find traces of this sphere of Mazzaroth in one shape or other; and even in the new world, and among the nations of Spanish America, as well as anywhere else.

In many of the Grecian *Parapegmata* of later times the influence of this Egyptian sphere of Mazzaroth, and of the prejudice associated with it, is also perceptible: particularly in the sphere of Eudoxus. There is every reason to believe also that it had much to do even with the Julian correction. That correction was superintended by Sosigenes an Alexandrine astronomer; who could not be ignorant of this sphere, and of its traditionary date, March 24 as it stood at first, March 23 as it was in his own time. In the opinion of this astronomer, the natural year and the mean Julian year must either have been absolutely the same, or supposed to differ so little, that the Julian type of this year, once accurately defined and laid down, would never again stand in need of correction, or only in an indefinite length of time. In his time, the vernal equinox, the first term in the natural year, was actually falling on March 23, that is, on the epoch of Mazzaroth: and Pliny tells us that he was so anxious to attach the correction to that date, (which in the Roman style of the time being was expressed by March 25,) that he

went over his calculations, whatsoever they were, three times expressly to satisfy himself about their truth.

ii. Though the Egyptians appear to have kept the true history of their Phoenix cycle a profound secret as long as they could, yet something would transpire about it in the course of time: and in particular after their conversion to Christianity, when any motive for mystery of this kind, derivable from superstitious or idolatrous considerations, would naturally be removed. Certain it is at least, that lower down, and in the Christian æra, we do meet with facts and circumstances in the fable of the Phoenix, which appear nowhere before.

For example, in the Scholiast on Lucan we find the following statement<sup>r</sup>: Phoenix est avis vicina ortui solis, sine pare. quæ post quingentos annos, cum senserit se gravari senio, collectis pretiosissimis aromatibus, exstruit sibi rogum voluntarium, et combusta de cineribus suis post quadraginta dies resurgit. The length of the Phoenix period is here correctly assigned: but a new fact in the history of the bird is mentioned, that its transformation took up 40 days.

The author of these Scholia was a Christian<sup>s</sup>: and as he quotes Macrobius<sup>s</sup>, and refers to the style of the Fasti, Arcadio et Honorio coss. before his own time<sup>t</sup>, and alludes to the Olympic games, as no longer celebrated in his own time<sup>u</sup>; (and these are known to have been suppressed by Theodosius the younger;) we may presume he was writing in the latter half of the fifth century. In this allusion to the 40 days' transformation of the Phoenix, it might be supposed he was referring to the 40 days' interval between the resurrection of our Saviour and his ascension. Yet it would not be easy to say what analogy could possibly be imagined between that fact in the chronology of the Christian history, and this transformation of the Phoenix. It is much more probably to be explained on a different principle.

The division of the sphere, in *octavis partibus*, it is well known, was characteristic of the Julian calendar; and it is recognised by this commentator, who dates the autumnal equinox, in conformity to the strictly Julian rule, viii kal.

<sup>r</sup> Ad Phars. vi. 680. E5a.

<sup>s</sup> Ibid. i. 412.

<sup>t</sup> Ibid. v. 384. Fastis.

<sup>u</sup> Ibid. i. 294.



Oct.<sup>w</sup>: and the summer solstice viii kal. Jul<sup>x</sup>: and the vernal equinox, according to a various reading of the numbers in his text, (xiii kal. Apriles,) viii kal. Apriles<sup>y</sup>.

Let this principle be applied to the cardinal or primary date of the sphere of Mazzaroth, March 23. The eighth term before this would be March 16 inclusive, March 15 exclusive. The doctrine, which we explained *supra*<sup>z</sup>, of the alternate recession and advance of the tropical points in the sphere of Mazzaroth, applied to a graduation of the sphere like this in *octavis partibus*, would suppose them to oscillate backwards and forwards perpetually, seven days on one side of March 23, and seven days on the other. Reckon 40 days from March 15, and you come to April 24; and reckon 40 from March 16, and you come to April 25. These 40 days, between March 15 exclusive, and April 25 exclusive, were most probably the 40 intended in this addition to the fable of the Phoenix, and devoted to the mystical reproduction of the bird itself. Where this doctrine of the alternate recession and advance of the points in the sphere of Mazzaroth was received, this interval would be fixed; and it would measure the utmost amount of the recession of the tropical point in the sphere of Mazzaroth, which was possible, between the original epoch both of the tropical sphere and of the sphere of Mazzaroth, April 25, and eight degrees to the west of the second epoch of the sphere of Mazzaroth, March 23.

Again, it appears from Epiphanius that, according to the account of the transformation of the Phoenix received in his time, it lasted three days. Περὶ δὲ τοῦ Φοίνικος τοῦ Ἀραβικοῦ ὀρνέου περισσόν μοι τὸ λέγειν. ἤδη γὰρ εἰς ἀκοὴν ἀφίκειται πολλῶν πιστῶν τε καὶ ἀπίστων. ἡ δὲ κατ' αὐτὸν ὑπόθεσις τοιαύδε φαίνεται. πεντακοσιοστὸν ἔτος διατελῶν ἐπ' αὐτὸν γινώσκει τὸν καιρὸν τῆς αὐτοῦ τελευτῆς ἐνστάτα, σηκὸν μὲν ἐργάζεται ἀρωμάτων, καὶ φέρων ἔρχεται εἰς πόλιν τῶν Αἰγυπτίων Ἑλίουπολιν οὕτω καλουμένην, ὧν δ' ἑρμηνευομένην ἀπὸ τῆς Αἰγυπτιακῆς διαλέκτου καὶ Ἑβραϊδος<sup>a</sup>—Καὶ πρὸς μίαν ἡμέραν ἀφανισθέντα σκώληκα γεννᾷ. ὁ σκώληξ πτεροφνεῖ νεοττὸς γενόμενος. τῇ δὲ τρίτῃ ἡμέρᾳ ἀδρύνεται, καὶ ἀδρυνθεὶς... αὐθις ἀνατρέχει εἰς τὴν ἰδίαν πατρίδα<sup>b</sup>.

<sup>w</sup> x. 217. 226.      <sup>x</sup> Ib. 229.      lxxxv.

<sup>y</sup> iv. 58.      <sup>z</sup> Sect. ix. ii.

<sup>a</sup> Opp. ii. 89. C. D: Ancoratus,      <sup>b</sup> 90. A: cf. 203. Physiologus, De

Phoenix, xi. It may be collected from

Here too it might be supposed, at first sight, that this addition had been made to the circumstances of the fabulous history, in consequence of the Phœnix's being looked upon in the Christian light of a type of the resurrection. But in this case it must have been regarded as a type of the raised and glorified body, not of Christians in general but of our Saviour in particular: and it is quite certain that, though Christian writers do appeal to the fable of the Phœnix as supplying an argument of the resurrection of the body in general, (and from its own corruption too, and in a more glorious form,) they never insist upon it as any argument of the truth of the resurrection of our Saviour, or of the length of time in which that took place, or of the difference in his case between the body which was buried and the body which rose again.

The Phœnix period in this account of Epiphanius is correctly represented: and we are bound to suppose that there was some foundation for this additional circumstance, which appears in his account also; and some meaning in it, if it could only be divined and pointed out. This addition amounts in substance to the statement that, between the death of an old Phœnix, the representative of one period, and the reappearance of a new one, qualified in all respects to represent the next—there was three days' interval; and as it would seem, or as it may very fairly be assumed to be meant, three days complete. Now the recession of the tropical sphere in the sphere of Mazzaroth, through one Phœnix period, as we have seen, was just 3 days 21 hours in time; that is three days complete and part of a fourth. This recession after all, and nothing else, must have been what was always meant by the fabulous death of this bird; and its coming to life again must have been the point where this recession ended in one period, in order to begin again in the next. This being once known, nothing would be more natural, and nothing easier, than to engraft this circumstance on the fable, by supposing the new Phœnix to come to life,

Achilles Tatius, (*De Leucippes et Clitophontis Amoribus*, iv. 24.) that in his time the reputed period of the transformation was 5 days. So long at

at least is the interval which he there assigns to the burial rites of the parent bird at Heliopolis.

after the death of the old one, in possession of the proper perfection of its nature, in some manner or other in three days' time.

Besides this passage however, which thus specifies the number of days taken up by the transformation, we meet with another still more curious, which tells us in what month, and in what season of the year, these three days were so devoted. In the *Excerpta Bodleiana* of the late Dr. Cramer<sup>c</sup>, there is a passage which represents this change of the Phoenix as transacted in the usual place, at Helio-  
polis, after the usual interval of time, 500 years, and in three days' time, like the last from Epiphanius; but these three days, some three ἐν τῷ Φαμενώθ μηνὶ ἢ τῷ Φαρμουθῇ<sup>d</sup>.

There cannot be any doubt that these are the Alexandrine Phamenoth and Pharmuthi; the stated date of the former of which in the common years of the Julian cycle of leap-year was Feb. 25, and in the leap-year was Feb. 26; and that of the latter in every year alike was March 27. Now according to the original scheme of the sphere of Mazzaroth, the date of Krion 1 was April 25, and that of Ichthyon 30 April 24; that is, the earliest term of the tropical sphere in the sphere of Mazzaroth, April 26, was the last day but one of the Alexandrine Pharmuthi: and supposing one sign of the sphere of Mazzaroth to be measured by the recession in 4000 years, the mystical death and resurrection of the Phoenix, for the first 4000 years, must have been confined to the limits of the Alexandrine Pharmuthi, between April 24, the last day of Ichthyon and the last but one of Pharmuthi also, and March 25, the first of Ichthyon, and the last but one of Phamenoth. But when the recession had got past March 25—and was now beginning to fall on March 24—it might be said to be falling at once on the last day of Hydron, and on the last but two of Phamenoth; and for the next 4000 years it would proceed (as before for the first 4000 years) *pari passu* relatively both to Hydron and to Phamenoth. So that it might strictly be said, on this principle, that for one great double period of 8000 years 16 Phoenix cycles, from A. M. 158 to A. M. 8158, the mystical

<sup>c</sup> iv. 260. 9. *Excerpta varia*, (see p. 258.) Περὶ Φοίνικος.

<sup>d</sup> l. 16–22.

change of the bird must always have taken place on some three days either in Phamenoth or in Pharmuthi. This appears to us to be the true explanation of this singular statement.

---

## CHAPTER V.

*On the lunar mansions of the Egyptians; and on the confirmation of the preceding account of the Phœnix cycle by the division of the lunar mansions.*

---

SECTION I.—*The idea of ζώδια, or animal figures of the stars, not a natural one, nor likely to be the first to occur.*

THE idea of forming the stars into ζώδια, figures of animals, (beasts, or birds, or fishes,) which are properly meant by that word, and much more into human figures, to which also the same word has come to be applied, is so repugnant to any thing which the heavens themselves appear to suggest, that to suppose a delineation of the sphere of this kind to be as old as the sphere itself, or the distinction of signs into ζώδια to be as old as the division of the ecliptic into signs; to our apprehension is one of the most improbable opinions which could possibly be conceived. The division of the ecliptic into signs is natural. It is made, at least, by the actual course of the sun in the heavens, and by the actual succession of the seasons. But the division of the ecliptic into ζώδια (the representation of the ecliptic by the *zodiac*, properly so called) must have been artificial. Whensoever it was made, it was made by men for themselves; and to suppose that they would make the zodiac out of the ecliptic from the very first would be to suppose the zodiac as natural and obvious a conception as the ecliptic itself from the first: a conclusion confuted by its own absurdity.

It cannot be denied that the stars exhibit, in repeated instances, the appearance of configurations of various kinds; and those in and about the ecliptic as much as the rest: but that these are the figures of animals, that they are any thing but lines and angles, (triangles, quadrilateral figures, paral-



lelograms, and such like combinations of lines and angles,) it would be contradictory to the senses themselves to maintain. There are two constellations in the heavens, which have probably been known by the name of an animal figure as long as any, *Ursa major* and *Ursa minor*; and we have seen it remarked that the stars which compose these constellations have a natural aptness and predisposition to assume a figure of that kind. But in that case, it may very well be demanded, how it has come to pass that the first idea of representing the more conspicuous of these two, that of the Great Bear, by a figure of any kind, was taken in reality not from a bear, but from a plough? It might be possible to make the figure of a plough, such as that which Hesiod and Virgil describe, out of the stars which compose this constellation; but not that of a bear, without a great effort of imagination, or without having been accustomed beforehand to look at them as the likeness and type of a bear. In the language of the north of Europe the popular name for this constellation is that of the Wain or Wagon: and it was familiarly known by a similar name even among the Greeks in Homer's time:

*Ἄρκτον θ' ἦν καὶ ἄμαξαν ἐπὶ κλησιν καλέουσιν*<sup>c</sup>.

To make animal figures or ζώδια of such combinations of lines and angles as the stars present relatively to one another, without any preliminary process of a certain kind; (that is, before men had been already accustomed to regard certain portions or spaces of the heavens as more properly associated with certain stars, or groups of stars, than with others; to look upon certain stars, or collections of stars, as standing alone, and as separated by their position itself from the rest in general;) to find figures of animals in the heavens, we say, by an effort of imagination from the very first, without any preparatory process, without any thing to lead the imagination itself gradually up to such an idea and conception at last; we consider to have been if not physically yet morally impossible; and one of the most irrational suppositions which could be conceived.

<sup>c</sup> Il. 2. 487. Od. E. 273.

SECTION II.—*On the first formation of the stars into constellations.*

But with regard to the idea of asterisms or constellations, properly so called, in contradistinction to ζώδια, the case must always have been very different. Imagination alone could convert the stars into zodiacal figures: and imagination itself would not be prepared to do that all at once. Constellations, properly so called, or the formation of the stars into particular groups and collections, one of them different from another, must have been the work of nature. Men could do nothing of that kind for themselves: all that they could do would be to observe and take notice of what nature itself had done in that particular way. Nor can it be denied that, long before human eyes had yet an opportunity of observing and scrutinizing the heavens for themselves, nature had already done much in this particular way; especially in and about the ecliptic, or the actual pathway of the sun in the heavens: in which quarter of the sky, as the very zodia of the sphere ultimately laid down upon it of themselves demonstrate, the most remarkable natural asterisms or constellations of this kind must always have been discoverable.

That names had already been given to certain of these natural groups and classifications of the stars, before the date of the book of Job, appears from that book itself; in which terms occur which all the versions of antiquity have rendered as the names of constellations of one kind or another, and which the learned have agreed to interpret in that sense: such as Ash, Cesil, and Cimah<sup>f</sup>; which the English Bible translates by the familiar names (classical indeed in their origin, and borrowed from the Greeks) of Arcturus, Orion, and Pleiades, respectively. These names then are older than the book of Job; but this does not necessarily prove that they are older than the Phœnix cycle of the Egyptians. The book of Job is older than the Exodus; but we do not know that it is older than the descent into Egypt: and that descent itself was sixty years and upwards later than the first Phœnix period.

It does not appear that tradition or testimony among the

<sup>f</sup> ix. 9. Cf. xxxviii. 31, 32. Also Amos v. 8.

Greeks or the Romans could trace back the constellations under their proper names much more than a thousand years beyond the Christian æra. *Nondum sunt anni mille quingenti*, observes Seneca g, *ex quo Græcia*

*Stellis numeros et nomina fecit.*

In which last words he refers to a line in Virgil's *Georgica*,  
*Navita tum stellis numeros et nomina fecit* h.

And according to Virgil himself, in this same place of his *Georgics*, the stars received such names only at or about the supposed termination of the reign of Saturn, and the supposed beginning of that of Jupiter; i. e. as the history of the Greek calendar, some time or other, may be the means of enabling us to prove, in strictness not before B. C. 1261.

It is at least a remarkable circumstance that the oldest tradition among the Greeks, relating to this particular historical fact of the first imposition of names on the stars, could not and did not carry it further back than the first Sothiacal period of the Egyptians; though it did carry it back so far: for this epoch of the first Sothiacal period of the Egyptians differed only by three years from the date of their second Phœnix cycle; and at the epoch of the second Phœnix cycle, which was also that of the first revision of the sphere, we shall probably see hereafter that names were actually given for the first time to the signs of the ecliptic, and names taken from animals and objects of sense too.

With regard however to the general question of proper names for particular stars, more conspicuous and more remarkable than the rest; or for certain collections and configurations of stars, which nature had made from the first, and had thereby distinguished in a sensible and obvious manner from the rest, (such as the stars of the Pleiades, of Orion, or of Charles' Wain,) whether such stars or collections of stars as these, might not always have had names of their own, in the absence of positive testimony we could not undertake to say; but on grounds of antecedent probability and of what was most naturally to be expected, we should consider the affirmative much more likely to be the truth than the negative. On this question however every one must be left

g *Natur. Quæst.* vii. xxv. 1. *Opp.* v.

h i. 137.

to decide for himself. All that we shall venture to say with confidence in reference to it is this; that whatsoever degree of attention might have been directed to the stars, in particular instances, even from the first; and whether names had been given to some among them for special reasons or not; the idea of laying down and dividing the heavens, or so much of it as constituted the ecliptic, in a regular and systematic manner, was first conceived and first carried into execution, along with the conception and realization of the first Phoenix cycle; and along with the first artificial adjustment and delineation of the sphere, of which we have hitherto been speaking; that is, in Egypt, and at the epoch of the first Phoenix period, A. M. 2158, B. C. 1847.

SECTION III.—*On the lunar mansions, and on the artificial principle of their construction.*

The lunar mansions of antiquity, as they have been called from time immemorial, were certain divisions of the ecliptic or of the equator, formed on the general principle of allowing to each of these parts of those great circles of the sphere, so much of the whole as the moon was known or supposed to pass through in one day and one night, or in one night and one day; that is, in 24 hours of mean solar time: the limits of which divisions however, one in comparison of another, were supposed to be defined not only in this manner by the general laws of the mean lunar motions, but also by the presence of certain stars, more remarkable than others, in or about the same places of the ecliptic likewise. Regarded in this point of view, with an equal reference to the moon and to the stars, these mansions were a kind of lunar and sidereal calendar, both in one; the details of which having once been settled, in conformity to the peculiar principles which regulated the division in reference to each, might be considered fixed and determined for ever, or for an indefinite length of time. It is agreed that these lunar mansions, in this sense of an artificial and conventional measurement of the lunar motions on certain positive principles and assumptions, are the oldest form of an artificial lunar reckoning, (if the name of such a reckoning may be given it,) of which any



thing has been supposed to be discoverable: though it must still be observed that the oldest lunar calendar, properly so called, the lunar calendar of nature itself, and probably at first the civil lunar calendar of all mankind, was the primitive Apis cycle; of the existence of which neither astronomers nor chronologers have yet been aware.

We meet with these lunar mansions among the Egyptians, among the Hindus, among the Chinese, among the Arabians, among the Persians, among the Siamese; every where in short among the nations of antiquity who appear to have paid any attention to the moon and to the stars; except the Greeks and the Romans. Among these in particular no traces of this peculiar lunar calendar are discoverable, so far as we know; none at least among the Greeks. With respect to the Romans, if they may be identified with the ancient inhabitants of Italy, we consider it far from improbable that the lunar mansions of the Egyptians were known in ancient Italy: and it could not be otherwise, if there was any foundation for the historical tradition relating to the migration of a colony from Egypt to Italy under the conduct of Hercules Lunus, the Egyptian impersonation of the lunar mansions themselves. It is very possible that even the characteristic lunar reckoning of ancient Italy, to which we have given the name of the nundinal calendar, might have been suggested by this of the lunar mansions. The measure of the nundinal cycle indeed was different from that of the mansions; but the nundinal calendar was scarcely to be called a lunar calendar any more than the lunar mansions: and yet it was a calendar which professed to be lunar, like that; though of a purely arbitrary and positive kind.

The lunar calendar of Spanish America, at least, exhibits a striking analogy to this of the mansions; as every one will admit as soon as he knows that the lunar month in this calendar was only 26 days long, and was divided into two equal parts, each of them thirteen days long. Now this, as we shall see by and by, was the length of the lunar mansions too in integral days. The *Tonalli* or week of the Toltecs and Aztecs was a period of 13 days also: and these are peculiarities which do strongly imply some connection with the lunar mansions: though in what manner the lunar mansions

of the Old World might have passed to the inhabitants of the New, and when ; these are questions which it is much easier to ask than to answer.

It has been made matter of dispute among chronologers and astronomers, and learned men in general, where this idea of a lunar and a sidereal calendar in conjunction was first conceived, and where this division of the ecliptic or of the equator into lunar mansions was first laid down ; and in particular whether the Egyptian, or the Hindu, or the Chinese, or the Arabian, scheme of this kind has the best right to be considered the original one, and the prototype and model of the rest. The conclusion to which we ourselves have come is this : That in this instance, as in every thing else connected with the modification of the primitive sphere, the first step was taken by the Egyptians ; the first idea of the resulting effect was conceived and executed in Egypt. The lunar mansions are ancient every where in the east, but nowhere so old as in Egypt ; nor in Egypt itself older than the Phoenix cycle.

SECTION IV.—*On the distinction between the first and the last type of the lunar mansions among the Egyptians themselves.*

The course of the subject and the duty incumbent upon us of making good the assertion which we have just advanced, especially as opposed to the opinions of learned and scientific men, whose inquiries have been expressly directed to this very point, would require us now to proceed to the proofs of what we have asserted ; viz. that the lunar mansions of antiquity were nowhere older than in Egypt, nor in Egypt itself than the Phoenix cycle. Nor could we enter on the discharge even of this necessary duty without regretting the obligation under which we were laid of maintaining and making good an assertion, which involved so much both of theoretical and of practical astronomy, against the conclusions of some of the most competent of scientific and practical astronomers themselves. It is possible indeed that, on the chronological part of such a question, even *we* may be able to reflect some light ; and perhaps more than has ever yet been cast upon it ; but we feel well assured that we cannot do justice to the astronomical part of it : we must leave that

to other and more competent persons. We would earnestly however recommend to men of learning and science the consideration of this part of the subject afresh. They will find that astronomy itself, as well as chronology, is deeply interested in it; and as right conclusions of one kind can never be at variance with right conclusions of another, especially on the same subjects; it may be taken for granted that, if the chronology of these mansions can be established from first to last, the astronomy, mixed up with them also, will never be found to contradict the chronology.

*Nam neque decipitur ratio neque decipit unquam.*

In the next place it is also to be observed that, though the idea of the lunar mansions was first conceived in Egypt at the epoch of the Phoenix period, and the first scheme of that kind was proposed along with the first modification of the sphere which was then made; yet this is not that scheme of the mansions which actually descended to posterity; nor in fact that which passed, in the course of time, out of Egypt into other parts of the world. It was a part of the original conception of the scheme and representation of the mansions that, as they came into being along with the sphere, so they should be revised, and corrected and remodelled, along with the sphere too, as often as that should be so treated. Now there were two revisions of the sphere in Egypt, in the regular course of things; and therefore, on this principle, two revisions of the mansions also. The first conception of the scheme and the first of these revisions of it are recoverable even at this distance of time: but the actual scheme which descended to posterity, and in fact passed into almost all quarters of the ancient world, is the second revision, or that which took place at the epoch of the third Phoenix cycle. And at this time it appears too that, for particular reasons, a change was made in the scheme itself, affecting the absolute, though not the relative, order of the mansions, such as it had been from the first until then. The head of the mansions was set back  $13^{\circ}$  or one entire mansion at once: and all the rest were altered in the same proportion too. So that, though the number of mansions continued nominally the same as before, and each continued to precede or to follow another in the same relative order as before, their

absolute place and position in the scheme from the first until then was changed, and each lower mansion stepped *de facto* into the room of that which was next above it. The Julian epochs of the mansions, as they had stood until then, were altered from this time forward in the same proportion: so that though this final scheme and representation of the mansions (which may be said to be the only one known to history, or from testimony *ab extra* of any kind) was not absolutely different from the first and original one, yet neither was it altogether the same with it.

Now this being the case, it would scarcely be possible to give a complete and circumstantial account even of the original scheme, without explaining the nature of this too which was ultimately grafted upon it, and ever after took its place: and yet it would be premature to enter on the account of this final modification of the original scheme, until the proper time arrives for treating of the last revision of the sphere. We think it best therefore to reserve for the present what we have to say on this subject. The two schemes are calculated reciprocally to illustrate and to explain one another; and it would not be doing justice to either to deprive it of the light and confirmation which it has a right to expect from the other. We shall confine ourselves, in this first instance, to a general account of the first and original division, and of the principles on which it was made, so far as we have been enabled to divine their nature; and to one or two proofs of the truth of the account, and in particular of the truth of the epoch, the date of the first Phoenix cycle.

SECTION V.—*On the general principle of the division of the lunar mansions.*

The Egyptian scheme of these mansions, with their Egyptian names in the Coptic form, is still in existence, and may be seen in the *Lingua Ægyptiaca Restituta* of Athanasius Kircher<sup>i</sup>; but as we have just observed, solely from the time of the last revision, which was made at the epoch of the third Phoenix cycle. The Arabian scheme is substantially the same with this, and differs from it only in certain parts: and that has been frequently considered and illus-

<sup>i</sup> Cap. v. p. 559. Romæ, 1643.



trated by learned oriental scholars; in particular by Hyde, in his commentary on the tables of the fixed stars of Ulugh Beigh<sup>k</sup>. In the Arabic, according to Hyde<sup>l</sup>, the name of the mansions is *mandzil al kamer*, i. e. *mansiones lunæ*: or simply, *al mandzil*, *mansiones*: according to Golius, quoted by him, it is *nugjûm al acha*, *stellæ progressus seu ingressus*; *stellæ comprehensionis aut receptionis*: either because the moon visited a fresh star or a fresh set of stars in each every night, or because each in its turn received, and comprehended and entertained, the moon within its precincts for a distinct night. In the Coptic, they are called simply Νιμωην τε τρετιό, i. e. *mansiones lunæ*; from μωνή, the Greek for mansion, and io or ioh, the Egyptian for moon<sup>m</sup>. But the Arabians gave them the name of *Anwâ* also: and we cannot do better than begin with quoting Pococke's account of this term, and of the mansions as denoted by it, according to the Arabian idea and conception of such a scheme<sup>n</sup>.

“Præcipua Arabum circa stellas fixas cura, quod illis cum Indis commune, teste *Sharestanio* . . . stellæ autem istæ quas \* \* *Anwa* vocant, i. e. stellas ad occasum mane vergentes ita ut eodem momento ad orientem supra horizontem ascendant aliæ, illis oppositæ, (explicantibus *Al Jauhario*, *Ebnol'athir*, *Al Firauzabadio*, ceterisque grammaticis,) 28 sunt lunæ mansiones, quarum circa ortus et occasus quænam contingere solerent in aëre mutationes cum diuturna experientia observassent Arabes prisci, eo tandem delapsi videntur ut divinam illis potentiam attribuerent; ac pluvias suas (quæ maximum illis beneficium) se earum nonnullis debere profiterentur... uti refert *Ebnol'athir*: qui et \* \* \* constellationes quibus nomen *al Anwa* competit fusius describens ait esse eas 28 mansiones, quarum aliquam singulis noctibus occupat luna, et quarum aliqua post 13 noctes ita mane occidat et sub horizonte deprimatur, ut simul in oriente ex ipsius opposito emergat altera. (excipi ait *Al Jauharius* *Al Jabhah* dictam, cui 14 noctes attribuit.) spatio autem annuo percurri omnes et absolvi.”

<sup>k</sup> Syntagma Dissertationum, Oxonii, 1767. In Ulugh Beighi Tabulas Stellarum fixarum Commentarius, p. 1 sqq. Cf. Alfergan. Golii, cap. xx. p. 77. Kircher, Lingua Egyptiaca Restituta, ut supra. Beck, Ephemerides Persa-

rum, lib. ii. cap. v. p. 22.

<sup>l</sup> Page 6.

<sup>m</sup> Cf. Kircher, loc. cit. p. 560.

<sup>n</sup> Specimen Historiæ Arabum, p. 163. Cf. Sale's Koran, Preliminary Discourse, sect. i. ad fin.

*Al Jabhah* in the Arabic<sup>o</sup> means *frons* or *forehead*: and these are supposed to have been four stars on the forefront of the face of the lion, though Alfergan makes one of them *Cor Leonis*. *Al Jabhah*, the mansion to which *Al Jauharius* thus assigned 14 nights, was the xth. Others assigned these 14 nights to the xivth mansion, Simâk al 'Azal<sup>p</sup>: on which difference we may have something to remark elsewhere. At present, the use which we make of this traditionary account of the Arabian Anwâs is to observe, That the division implied hereby must have been adapted first of all to the equable year of 365 days: for the number of mansions being 28, and 13 nights being the length of each,  $28 \times 13 = 364$ ; only one day less than the equable year. And 14 nights (=14 days) being given to some one mansion in particular, the 28 mansions were thereby rendered exactly equal to one equable year.

And yet, it is manifest, it would be just as possible to adapt a scheme of this kind to the Julian year of 365 days every three years, and of 366 every fourth; by merely appointing that, in the year of 366 days, two mansions, and not one only, should have 14 nights. The Syrian calendar, in Ulugh Beigh's time, was absolutely the same with the Julian, in all but the names of the months and the beginning of the year: and in his account of the mansions<sup>q</sup> there is a double intimation of this kind; viz. That in every year of the cycle of leap-year, *Gaphr*, the xvth mansion, would rise 14 nights after *Simâk*, the xivth; and in the leap-year, *Sheratein*, the ist, 14 nights after *Rishâ*, the xxviii<sup>th</sup>: i.e. in the leap-year there were two mansions of 14 nights in length, the xivth and the xxviii<sup>th</sup>.

Another remark which may obviously be made on this account is that, according to the original scheme of these mansions, and, as it must have been supposed, ever after too, the number of degrees in the heavens, between each mansion and its opposite one, must have been 180: otherwise it never could have been assumed to hold as a general, much less as an invariable, rule that, as the first point of one of these mansions was sinking below the horizon in the west, the first

<sup>o</sup> Pococke, loc. cit. in margine. Cf. Hyde, p. 8; Alfergan. p. 78.

<sup>p</sup> Cf. Hyde, p. 8. 11.

<sup>q</sup> Ibid. p. 11.

point of the opposite one was rising above the horizon in the east. It follows that every 14 mansions must have contained 180 degrees; and each one of the 14 a 14th part of 180°: or, what comes to the same thing, the *justa mensura* of each mansion must have been the 28th part of 360 degrees, or the 14th of 180 degrees, or the 7th of 90 degrees; each of which is as nearly as possible 13 degrees exactly.

And hence it may justly be inferred, in our opinion, that this division of the heavens into mansions in the first instance was not a division of the stars, as they happened to be found in and about the ecliptic—as they happened to be comprehended in such and such spaces of the heavens themselves; but simply of the ecliptic into a certain number of equal parts, in each of which more or fewer of the stars would necessarily be included; but the division itself, so made and under such circumstances, could not be said to have been made for the sake of the stars, nor to affect them except *κατὰ συμβεβηκός*. And this distinction is of great importance; for, as we have already observed, this was just that division of the ecliptic, different from the preexisting division into signs, and preparatory to the division of it into zodia at last, which was most likely first to occur, and first to be made; viz. the distribution of the ecliptic itself, upon any conceivable principle, into smaller portions and segments than signs; and of the stars only through that, as necessarily comprehended more or less in any distribution of the ecliptic itself.

From this traditionary account then of the lunar mansions of the Arabians, called *anwās*, in which all our authorities are agreed, we appear to have attained to the knowledge of three things, relative to the division itself: i. That the original scheme of such mansions must have been adapted to the equable year of 365 days, and yet was easy to be accommodated to the mean Julian year of 365 days 6 hours. ii. That the mansions were all of the same length, and each of them the 28th part of 360 degrees. iii. That the proper and primary subject of the division was the ecliptic, and not the stars in and about the ecliptic, except *per accidens* and through that.

The next thing to be observed is That the measure of

every mansion in degrees of the ecliptic being thus assumed at  $13^{\circ}$ , this is the nearest to the actual standard of the mean diurnal movement of the moon, in integral degrees, which could have been assumed at any period of the history of the world. The mean diurnal motion of the moon in longitude at present is  $13^{\circ} 10' 35''.027$ : and though its mean motion at the beginning of things was slower than it is at present, it is certain that within the compass of all human observation of its movement, it never was less than  $13^{\circ}$ , and it must have been somewhat greater than  $13^{\circ} 10' 35''$ , in one mean solar day.

It follows from this fact that the mean length of the ecliptic mansion, and the mean diurnal movement of the moon in longitude, were nearly the same; so much so that it could never happen, under any circumstances, that the moon could pass through two mansions successively in one night, though it must regularly pass through more than one. It is evident too, that the limits of these different mansions having been clearly and intelligibly laid down on the ecliptic, the tropical revolution of the moon might be observed and followed from day to day, much more exactly through these minor divisions of the ecliptic, than through the larger ones of the signs: and by means of the stars, comprehended within these mansions also, it would be just as possible to observe and follow its sidereal revolution with the same exactness also. And indeed this division of the ecliptic into these minor spaces, called the lunar mansions, ( $13^{\circ}$  each, or nearly so, in length,) being so much more clearly adapted to the observation of the tropical and of the sidereal revolution of the moon, than to any thing else, it is by all means to be supposed it was conceived and laid down expressly for the sake of that observation; and that what the Egyptian astronomers had in view, when they conceived and executed this scheme, was a series of observations on the tropical and the sidereal revolutions of the moon, which might be made instrumental to the determination of the mean lunar motions with all possible exactness, as well as to that of many other interesting problems in astronomy; particularly that of the recession of the tropical points on the sphere, and that of the precession of the fixed stars. It is not so probable that it was intended for the sake of the synodic revolution of the moon. The



natural method of tracing the sun and the moon in conjunction perpetually would seem to be through the larger divisions of the ecliptic called signs, rather than through these smaller ones, called mansions; because the sun moves through one of those larger divisions, and the moon through thirteen, in every synodic revolution, and if they are in conjunction once at the beginning of a sign, they will be in conjunction again at the end of it, and so on in proportion perpetually. We shall probably too see hereafter that the Egyptians possessed from the first a most accurate measure of the true mean synodic revolution, in the primitive Apis cycle of the equable year. It is manifest however, that this division of the ecliptic into mansions, including such and such portions of the stars, was as much adapted to facilitate the observation of the tropical and the sidereal revolutions of the sun, as that of those of the moon: that the sun must pass through each of these mansions on an average every 13 days, as the moon did every day; and the sun must visit every star in each mansion, on some one day every year, as the moon did every night. And the nature of the division of the mansions itself being such that every seven contained 90 degrees of the ecliptic exactly; if the mean sun was on the vernal colure in the first degree of the first mansion, it would be on the summer solstitial colure in the first degree of the eighth, and so on all round the sphere.

Again, the 28th part of  $360^\circ$  is not  $13^\circ$  exactly, but only  $12^\circ 51' 25'' \cdot 714 285 7$ ; and though this might have been assumed as equal to  $13^\circ$ , or a scheme of divisions might easily have been devised, according to which the mansions should have been cyclically reckoned, sometimes at more, sometimes at less than this quantity of  $12^\circ 51' 25'' \cdot 714 285 7$ ; we are entirely of opinion that the Egyptians did not think proper to proceed on any such principle as that; but rigidly on that of assigning to every mansion the 28th part of the entire ecliptic. It is on this principle of strict proportion to the whole ecliptic, and of absolute equality among themselves, that the scheme of the mansions, which we have delineated, will be found to be constructed: and that will be seen to be verified in a remarkable manner by the matter of fact. There may be a doubt on one point; viz. whether the mansions were

laid down in the first instance on the ecliptic or on the equator. The Chinese mansions were laid down on the equator; yet they were derived from the Egyptian: and the Chinese have shewn so little originality in modifying even a borrowed idea of any kind so as to make it their own, that this fact, in our opinion, amounts almost to a decisive proof that the Egyptian mansions themselves were laid down on the equator. There is little reason to doubt at least that all which they proposed to regard, both in their Phoenix cycle and in their lunar mansions, were mean motions, whether of the sun or of the moon; for their views, as we have seen, were of the most magnificent kind, and extended far into futurity; embracing a period for the whole decursus of which true motions, and actual phenomena at a given time, must be treated as merely accidental or transitory; nothing could be steadily and constantly regarded but mean. The Hindu and the Arabian mansions however were laid down on the ecliptic; yet they too were derived from the Egyptian. It is most probable therefore that the original scheme of the Egyptians was adapted to both the ecliptic and the equator.

These mansions however being laid down on the equator in the manner described, it is manifest each would rise and pass the meridian and set in just the same interval of time perpetually; and each in the 28th part of 24 hours, or 1440 minutes, = 51 m. 25 s. 714 285 7 exactly: so that a scheme of the risings and settings and culminations of these mansions having been once laid down on this principle, and for any latitude or any meridian, through one period of 24 hours, it would be perpetually applicable to that latitude and to that meridian. It will be seen hereafter that the Chinese had such a scheme, and so laid down; according to which every mansion passed the meridian at a stated time. It is a curious coincidence too, and may possibly authorize the inference that the ancient Egyptians, who first contrived this scheme of the mansions, were aware of what astronomers call the diurnal anticipation of the fixed stars; that this anticipation in 13 days amounted to 51 m. 6 s. 823 of mean time exactly; only 18'' 891 less than the stated time of the passage of each mansion over the meridian also; so that on this principle, if

there was always a particular star on the first or the last degree of each mansion, each would be seen rising, and passing the meridian, and setting, for a given meridian, just 13 days after another: as the Arabian theory of the Anwâs, according to the explanation of it proposed *supra*, supposes to have been actually the case.

SECTION VI.—*On the lunar character of the epoch of the mansions: and on the epoch of the mansions itself as recoverable from the testimony of Ulugh Beigh, A. D. 1419.*

The first observation which we may make on the epoch of the lunar mansions is that it was not attached to the *luna prima*. A.M. 2158, B.C. 1847, corresponded to period viii. cycle ii. 11. of our general lunar Metonic calendar; in which the epoch was falling April 2 at 18 hours; and our calendar at this time being true to the moon, the new moon of nature must have fallen either April 2 or April 3. Unless the epoch of the mansions then was either April 2, or April 3, it could not have been attached to the *luna prima*. We have calculated the true new moon in April, B. C. 1847, for the meridian of the ancient Heliopolis, and found that it actually fell on April 2.

In the next place, the epoch of the mansions *de facto* was attached to the date of the mean vernal equinox, for the meridian of Heliopolis, the same year; and this we have seen was April 8 12 h. 32 m. 8 s. 48 th: and if it was to answer the end and purpose proposed by the mansions themselves, such as we have already explained it *supra*, it could not have been attached to any term but the date of the mean vernal equinox; which was the beginning of the ecliptic and the beginning of the sphere itself. We are able however to place this fact out of question by the actual recovery of the Julian date of the epoch, through data supplied by Ulugh Beigh, 3265 years later than the institution of the mansions themselves.

At the end of Hyde's account of the mansions from Ulugh Beigh, there is a scholium or note of Ulugh Beigh's himself in Arabic, which Hyde translates as follows<sup>r</sup>.

"In anno Alexandreo 1730 ortus τὸν Sheratein erat in

<sup>r</sup> Syntagma, p. 11.

vicesimo sexto mensis Nisân. singulis autem septuagenis annis addendus est dies unus. et post tredecim dies oriatur Botein : et sic de ceteris mansionibus. at quando advenerint vices τοῦ Simâk (the xivth mansion,) ortus τοῦ Gaphr (the xvth) erit post quatuordecim dies : aliarum vero mansionum ortus erunt post tredecenos dies. et in anno embolimæo post ortum τοῦ Rishâ (the xxviiiith,) Sheratein etiam oriatur quatuordecim diebus. porro cum ortu cujusque mansionis fit occasus oppositæ ejus, quomodo se habent mansiones quindecim.”

Now it is here to be observed that Sheratein, or Sheratân, (called also Xartân<sup>s</sup>), was the first mansion in Ulugh Beigh's scheme, and Botein was the second. Also that by the 1730th year of the æra of Alexander he means the 1730th of the æra Sel. which began Oct. 1 A. D. 1418, and ended Oct. 1 A. D. 1419. Therefore by the 26th of Nisan in this year he means the 26th of April, A. D. 1419 : and this too is something remarkable ; the epoch of his own Tables not being A. D. 1419 but the beginning of Hej'ra 841, July 4 A. D. 1437<sup>t</sup>. His noctidiurnal cycle however was reckoned strictly in conformity to the astronomical rule<sup>u</sup> : that is from noon. Consequently his 26th Nisan, or April, A. D. 1419 was reckoned from noon ; and, referred to the rising of any of the mansions after midnight at least, would be equivalent to Nisan 27, or April 27, according to the Julian rule.

Now, we have already mentioned that by virtue of the change ultimately made in the absolute order of the mansions, the epoch was shifted an entire mansion backwards. Let us suppose it was always called Al Sheratân, which means merely *the epoch* ; and that it retained this name after that change also. Sheratân the first mansion in this final arrangement of the scheme was properly notwithstanding the 28th of the old scheme ; and Botein, the second of this, was properly the first of that. Now the stars of this first mansion in the original scheme, as we have explained, were the four on the tail (ὀρροπύγιον) of the Ram : and these are specified in Ulugh Beigh's catalogue under the name of *Min al Botein*<sup>w</sup> :

<sup>s</sup> Alfergan, xx. p. 77.

<sup>t</sup> Hyde, Ulugh Beighi Tabulæ, p. 4.

<sup>u</sup> See Epochæ Celebriores, cap. i.

p. 4, or supra Diss. iv. ch. i. sect. ii. vol. i. 135.

<sup>w</sup> Hyde, Tabulæ, p. 60. 7-10.



shewing that they still belonged to the same mansion as at first. The stars, which he assigns to Al Sheratân, or Sheratein<sup>x</sup>, on the contrary, are the two bright stars on the head of the Ram ( $\beta$  and  $\gamma$  Arietis): and it is observable that he places the most easternly of these two (the nearest to the tail) in longitude  $0^s. 27^\circ 7'$ : and the most westernly of the stars in the tail (the nearest to the head) in longitude  $1^s. 10^\circ 31'$ ; i. e. almost  $13^\circ$ , or one mansion exactly before the other. This was precisely the distance at which these two stars stood one from the other in the original scheme of the mansions; just  $13^\circ$ : and they could not fail to preserve the same relation to each other ever after, within certain limits at least. It is observable too that he places the last of the stars on the tail ( $2\tau$  Arietis) in  $1^s. 16^\circ 31'$ : and this is as nearly as possible the amount of the precession, according to our own table, in 3283 years, from B. C. 1847 to A. D. 1437\*. So that if a star at the mean vernal equinox, B. C. 1847, stood on  $0^\circ 0' 0''$ , July 4 A. D. 1437, it would be standing in  $1^s. 15^\circ 40'$ . And this is the star  $2\tau$  Arietis; the same which B. C. 4004 A. M. 1 was in conjunction with the sun in longitude  $330^\circ$  March 25; and A. M. 2158 B. C. 1847 was so in  $0^\circ 0' 0''$  on April 8: so that the epoch of the mansions, if attached to the epoch of this star at first, must have been attached to  $0^\circ 0' 0''$  in the

\* B. C. 1847—A. D. 1437 = 3283 years.

### Supplementary Tables.

#### Mean precession in longitude.

y.	°	'	''
3000 =	41	43	28.623
200 =	2	46	53.908
80 =	1	6	45.563
3 =		2	30.209
3283 =	45	39	38.303
Add 113 days =	..	..	15.491

45 39 53.794

Longitude of  $2\tau$  Arietis, mean

noon, July 4 A. D. 1437 =  $1^s. 15^\circ 39' 53''.794$

<sup>x</sup> p. 58: cf Alfergan, xx. 77.

ecliptic; that is, to the mean vernal equinoctial point, and to the <sup>o</sup>Julian April 8, the mean date of the same, at the time.

We shall assume therefore that B. C. 1847, for the meridian of Heliopolis in Egypt, the sun was in conjunction with this star April 8 at mean noon. The interval from B. C. 1847 to A. D. 1419 is 3265 years. And in this interval of time the excess of the mean sidereal year, of the standard of our Tables, over the actual Julian, after making the necessary reductions, is 19 d. 0 h. 25 m. 38 sec.\* We will assume also that the difference of meridians between Heliopolis and

\* B. C. 1847—A. D. 1419 = 3265 years.

<i>Mean Julian years.</i>		
	d.	h.
3000 =	1,095,750	0
200 =	73,050	0
60 =	21,915	0
5 =	1,826	6
3265 =	1,192,541	6
Add ..		12 hours from the last leap-year B. C. 1849.
	1,192,541	18

In integral days .. 1,192,541.

<i>Mean sidereal years.</i>			
	d.	h.	m. s.
3000 =	1,095,769	1 58	22·363
200 =	73,051	6 31	53·491
60 =	21,915	9 9	34·047
5 =	1,826	6 45	47·837
3265 =	1,192,562	0 25	37·738
Interval in Julian time ..	1,192,541		
Excess in sidereal .. ..	21	0 25	37·738 = 19 0 25 37·738.

That the point of the mean vernal equinox April 8 B. C. 1847 was the true epoch of mean sidereal time for every meridian under the sun, appears from the remarkable fact pointed out, *supra*, p. 292; viz. that the mean sun was in conjunction with  $\tau$  Arietis March 25 at 13h. 30m. 55s·8 in mean longitude  $330^{\circ} 0' 0''$  B. C. 4004; and (the sidereal precession in the meanwhile being 13d. 23h. 16m. 57sec. exactly) it was again in con-

Samarcand (the ancient Maracanda) was 2 h. 15 m. 21 sec. east—which cannot be far from the truth<sup>x</sup>.

Hence B. C. 1847, sun in conjunction with      h. m. s.

27 Arietis at Heliopolis      .. .. April 8 12 0 0

Add 3265 years' precession      .. 19 0 25 38

Sun in conjunction with 27 Arietis at

Heliopolis A. D. 1419      .. .. April 27 12 25 38

Add .. .. .. .. + 2 15 21

Sun in conjunction with 27 Arietis at

Samarcand .. .. .. April 27 14 40 59

Now, as the first star of Sheratein in the scheme of Ulugh Beigh, at this very time, was 19° or 20° west of 27 Arietis, it

junction with it April 8 at 12 h. 47 m. 52 s. 8 B. C. 1847, in mean longitude, 0° 0' 0".

According to our table of the precession of the mean sidereal year of the Fasti over the mean tropical, we have

y. d. h. m. s.

3000 = 42 7 58 22.363

200 = 2 19 43 53.491

60 = 20 19 10.047

5 = 1 41 35.837

3265 = 46 1 43 1.738 = 44d. 1h. 43m. 1s. 738

A. D. 1419 the mean vernal equinox, for the meridian of Jerusalem, according to our tables, was

h. m. s.

March 14 11 30 28.8

Add .. .. 1 59 37

At Samarcand .. March 14 13 30 5.8

3265 years' precession .. .. 44 1 43 1.738

58 15 13 7.538

April 27 15 13 7.538

<sup>x</sup> Bailly, *Traité de l'Astronomie* In- ch. x. § L. p. 315. Also Golius ad Al-  
dienne, ch. v. § xviii. p. 115, 116: cf. ferganum, notes, p. 177.

h. m. s.

Connaissance des temps, Benares and Paris ..... 5 22 22

Benares and Samarcand .... 1 11 20

Paris and Samarcand ..... 4 11 2

Paris and Cairo ..... 1 55 41

Cairo (Heliopolis) and Samarcand 2 15 21

Cairo and Jerusalem ..... 0 15 44

Jerusalem and Samarcand .... 1 59 37





(read ternos denos) quosque dies exoritur mansio alia, et opposita occidit, usque ad finem anni.

The exact age of Alfergan is not known; except that he probably lived in the reign of the Caliph Almamoun, between A. D. 815 and 833<sup>z</sup>. And as he thrice alludes to Almamoun in this treatise as no more<sup>a</sup>, he probably wrote it soon after his death. There might consequently be 600 years' difference between his age and A. D. 1419; in which time the precession of the sidereal on the Julian year would not be less than 3 d. 19 h. 36 m. And since his tenth day from the end of Nisan, according to the astronomical rule, requires to be understood of the morning of Nisan 22—his testimony would generally agree with that of Ulugh Beigh: for if Xartân was rising in Ulugh Beigh's time on Nisan 26, it might be rising in Alfergan's on Nisan 22.

SECTION VII.—*On the general confirmation of the preceding conclusions by the monumental sculptures.*

In the great work of Champollion Le Jeune on the monuments of Egypt and Nubia, to which we have referred more than once already, there is a representation of a sculpture<sup>b</sup>, discovered at Biban-El-Molouk, (at or near the ancient Thebes,) in a tomb which professed to be that of Ménephra the First, the reputed father of Sesostris. In this picture, in the midst of a square tablet, there is the figure of a colossal cow: over the back of which, along the upper edge of the tablet, there are 26 white stars: and underneath this cow

\* The morning of the last day of Nisan, reckoned from noon, the morning of Nisan 30, would answer to that of Aiyar 1 reckoned from midnight. Consequently the tenth morning before that must correspond to that of Nisan 22. And this would be generally consistent with Ulugh Beigh's date, Nisan 26, B. C. 1419, four days later. We do not however know the precise latitude for which this date of Alfergan's was intended, whether that of Bagdad, or that of some other quarter. The most complete scheme of the mansions is one which has lately been made public from a MS. of Kaswini in the National Library of Paris; of which we hope to give an account elsewhere.

<sup>z</sup> Bailly, *Astronomie Moderne*, i. *Éclaircissements*: Livre cinquième, § i. ii. p. 579: § vii. p. 583: § x. p. 585—§ xi. p. 586. Cf. Golius ad Alferganum, notæ, p. 2.

<sup>a</sup> Cap. v. p. 18: viii. p. 30.

<sup>b</sup> Tome iii. cxli. See the engraving of this plate at the end of the third volume of our work, No. i.

there are several figures very similarly attired in their proper dress, and all represented as if they were praying to this cow: and there is another figure, taller and larger than the rest, which has its arms stretched out as if in the act of supporting the cow: and over the head of this figure, and under the belly of the cow, there are 13 black stars.

Now if we may stop here with our description of this sculpture; every one must perceive from it that this cow is a mystical cow; such as the Egyptians must have imagined when they gave their Isis, or Neith, or Hator, the name of the cow which conceived or brought forth the sun. In other words, this cow is the type of the universe or of the heavens. And indeed the editors of the work so explain this part of the representation. We may take it for granted then that the great cow in this sculpture stands for the heavens.

With respect to the figures underneath this cow; they were no doubt all intended for some such impersonations as the Egyptians esteemed divine. We are concerned ourselves at present only with one of them, the figure which is exhibited so much more conspicuously than the rest; and which appears to be supporting the cow. There is little reason to doubt that this figure is meant for the Egyptian *Xōv*, the Egyptian Hercules Lunus; to which this sculpture assigns an office, in relation to the cow, analogous to that which Grecian mythology attributed to Atlas or Hercules too; that of carrying or supporting the heavens themselves. Between this conception of theirs and the moon, the Egyptian mythology supposed the closest connection; and this *Xōv* or Hercules was their *Deus Lunus*: a masculine impersonation even of the moon, yet from his nature and office itself the type of the actuating, ruling, and governing principle which presided over and guided the lunar momenta: particularly those which had much (or rather every thing) to do with the heavens and with the stars, but little or nothing with the sun.

This being the case; it is not surprising to find this Hercules Lunus associated with the hieroglyphical symbol of the heavens, and in a very characteristic manner too, and one peculiar to himself: for while the rest of these Egyptian gods, represented along with him, are praying to and adoring the cow, as if all inferior to it, or all derivable from

it, or all dependent upon it, he in particular is supporting the cow itself. The cow itself seems to be dependent on him. Still less surprising is it to find him associated in an equally significant manner with the lunar mansions, and even with the Apis cycle—though with the former more closely and more significantly than with the latter.

For after what was demonstrated, when we were treating of the Apis cycle, no one can hesitate to infer, from the number of the stars represented over the back of the cow, which is exactly 26, that these are the type of the Apis cycle: nor after what has lately been shewn too, of the proper length of the lunar mansions, represented in days, can it be questioned that the 13 stars, exhibited under the belly of the cow, are the type of the lunar mansions. Now these are represented immediately over the head of the figure, which is supporting the cow: the 26 stars are over his head too, but first and properly over the back of the cow. He has therefore a closer relation to the 13 stars, than to the 26: and if he was really the type of the lunar mansions, rather than of the Apis cycle, that could not fail to be the case.

With regard to the stars in each of these instances, the numbers speak for themselves. The number 26, from a certain time downward, could represent nothing but the number of *phōra* or lunar lights in the Apis synodic month; and the number 13 never did nor ever could represent any thing, in connection with the moon and the stars, but the number of degrees or the number of days in the lunar mansions. Nor is it without a meaning that the 26 stars are represented as *white*: the 13 stars as *black*. The 26 stars are 26 lunar *lights*; the 26 light days or light nights of the Apis cycle emphatically. They must therefore be represented as white: it would have been a contradiction of the thing signified by the sign employed to denote it to have represented them as black. The 13 stars are simply so many lunar days: and the lunar day is necessarily reckoned from the night. They are nothing but the abstract conception of the lunar motion, according to a fixed and invariable rule; which is just the same whether the moon is visible or not,

and whether the motion itself is performed by day or by night. That the 26 stars then over the back of the cow are represented as white, and the 13, over the head of the figure supporting the cow, are represented as black, we consider to be the most significant circumstance of the representation itself, to connect the former with the Apis cycle, and the latter with the lunar mansions. In like manner, the position of the white stars over the back of the cow, and of the black ones over the head of the figure beneath, connects this with the latter much more closely than with the former; and therefore designates and points it out in its proper character of the Hercules Lunus, the impersonation not of the Apis cycle but of the lunar mansions\*.

\* The date of the third type of the mansions among the Egyptians was B. C. 848. The date of the sixth Apis cycle from the epoch, æra cyc. 3034 B. C. 973, was æra cyc. 3159 B. C. 848 also. These coincidences were calculated to render that year remarkable, and to establish a connection between the mansions and the Apis cycle, which had never existed until then. It was a remarkable year in other respects; as we hope to see hereafter. We are entirely of opinion that this sculpture belongs to this year. But we shall have occasion to return to this subject at a future opportunity. At present we shall confine ourselves to the addition of such further explanations as are necessary to complete the account of it, so far as it has yet been given.

In the first place; there being so clear a reference in it both to the mansions and to the Apis cycle in conjunction; it cannot be unreasonable to suppose that one part of the representation may have a more particular relation to the cycle, and another to the mansions. In our opinion, the part exterior to and over the cow is of the former description; and that which is underneath it and within it is of the latter. We will take each of these in its order, beginning with the former; or that which we thus suppose to refer to the Apis cycle more particularly.

The 26 stars, which are the uppermost and outermost part of this exterior representation, have been explained. No one can doubt that they are 26 days; and properly the lunar lights of the synodic Apis month. Their number being only 26, but the proper complement of the Apis synodic month being 30 days; they necessarily imply that the reckoning of these 26 lunar *phōra* was now beginning on the 4th of the natural lunar month. And that began to be true *de facto* first at the epoch of our xxvi Julian period B. C. 868; but in the Apis reckoning it would naturally be assumed to be so first at the epoch of the sixth cycle, the 21st year of this period, B. C. 848 æra cyc. 3159. At this time the first of the solar Thoth was falling on March 22 at midnight; and therefore the 11th (the proper



## CHAPTER VI.

*On the second Phœnix period, and the second delineation of the sphere ; and the proofs by which it is established.*

---

SECTION I.—*On the testimony extant to the division of the sphere in duodecimis partibus.*

THE first Phœnix period of 500 mean natural years would come to an end, and the second would begin, A. M. 2658,

epoch of the Apis or lunar reckoning in terms of the solar,) on March 31: and March 31 at midnight was the luna 4<sup>a</sup>.

And here we cannot but draw the attention of the reader to the position of the horns of the cow, the next object which strikes the view ; relatively to these 26 stars. The points of these horns are inserted among those stars, and that must have been done on purpose ; for there was no absolute necessity *a priori* why the horns of this cow should have been mixed up with these stars at all, if there had not been a reason for it. They might have been so represented as to fall clear of the stars, and yet would have been as natural and as much in proportion to the rest of the figure of the cow, in that case, as at present. But they are so disposed among the stars, we observe, that the left horn cuts off *three* stars, and the right horn cuts off *ten*. We explain this if we suppose the former was done to point out the lunar epoch of the cycle, at this time, three days from the beginning of the lunar month, the Lunar 4<sup>th</sup> ; and the latter to point out the solar, ten days from the beginning of the solar month, the 11<sup>th</sup> of Thoth.

In the next place, among the other objects external to the cow, we observe two figures, one over the rump of the cow, the other under its mouth or chin. These figures are evidently the same. The posture of each is the same ; the costume or attire of each is the same ; the accompaniments of each are the same. Each therefore must be the hieroglyphical expression of the same idea, whatsoever that was. With regard to the dress of these figures, it does not present any very distinctive character. Each figure is naked ; the head only in each is covered ; and with a cap, which, so far as we have been able to discover, is either singular of its kind, and unlike any thing which we have met with elsewhere, or is intended for that species of headdress upon the sculptures which passes for the symbol of the lower crown. (See Bunsen, App. ii. Ideographics, 476.) It is most probably however simply a sculcap surmounted by a feather. The attitude of these figures is the most observable circumstance about them. Each is kneeling on one leg, (the same leg in each, the right leg,) and each has both its hands raised, as if to support something over its head. It does not appear to us that this attitude is intended of

B.C. 1347, æra cyclica 2659. The recession of the mean natural year, in terms of the mean or actual Julian, for one

i.  
the natural posture of *prayer*, which would be that of a figure kneeling on two legs rather than on one: nor are the hands in each instance raised up in the same way as in the natural expression of the act of prayer. But to kneel on one leg is the most natural posture of the human body, when it has to adjust itself to a weight or pressure of any kind from above; and in particular, when preparing to support a weight of any kind with the hands over the head. We have little doubt therefore that this kneeling figure in each of these instances is meant of the same Hercules Lunus or Egyptian Khons, who is represented underneath the cow, in the act of supporting it with his arms expanded too. In that instance indeed the figure is standing; in each of these it is kneeling: and there it has its hands merely expanded under the belly of the cow; here they are partially bent or inclined inwards over its own head. We infer from these distinctions, that the particular relation, in which this same idea of the Lunar Khons himself was intended to be represented in each of these instances, was that of the proper lunar epoch, the epoch of the lunar reckoning, whether that of the Apis cycle or that of the mansions, between which in this respect there was no difference. The epoch of the mansions was noon; the epoch of the cycle (as we have seen already) was virtually noon also; and when we say the epoch of either was noon, we as good as say that the proper reckoning of both began from the upper meridian. In our opinion these kneeling figures, which seem to be supporting something with the hands raised over the head, and forming a sort of arch, are types in these instances not only of Hercules Lunus but of the upper meridian; or of Hercules Lunus himself, (the abstract impersonation of the lunar reckoning, both that of the cycle and that of the mansions,) with a special reference to the proper epoch of each, the upper meridian.

The accompaniments of each of these figures appear to us to confirm this explanation. For first, underneath each we observe there are three figures, absolutely the same in each instance and therefore intended of the same thing in each. We have searched through the Ideographics of the Chevalier Bunsen, and through his other lists of hieroglyphical symbols; but have met with nothing the same in all respects with these. It is manifest however that they are merely some rectangular figure in outline; and, being both rectangular themselves and vertical, they resemble nothing so much as pillars or columns, *στυλαὶ* or *cippi*. A pillar or column would be an appropriate symbol of an epoch. A pillar or column, set up to define and limit, as well as to point out and indicate, something is a natural expression of a fixed and immoveable term like an *epoch*. There are three such pillars here; and at the time to which we consider this representation to refer, B.C. 848, there were three epochal terms in the Apis reckoning, the *luna prima*, *secunda*, and *tertia*: and as these pillars all stand under the type of noon, so all these epochal terms virtually bore date from noon.

of these periods, under ordinary circumstances, would be neither more nor less than three days 21 hours of mean solar

An epoch however, to be symbolized by a cippus, or *στηλή*, or pillar, must be regarded as simply a fixed and immoveable term. Time, on the other hand, is a flowing quantity; and the epoch of a reckoning of time of any kind is not only something fixed and immoveable in itself, but the first term of a flowing or progressive series, composed of terms like itself. Time, in every form and shape, is a current or stream; and the epoch of its proper reckoning, in its specific form and shape, is the head of this stream. It is that which lets out this stream, and opens the channel to this current; without however shifting its place itself, or losing its relation to the whole, as the common source from which it is all derived.

There is a simile in Homer, which describes the letting out of water from a spring-head, to irrigate a garden; the instrument of which process is a spade.

Ὡς δ' ὅτ' ἀνὴρ ὀχετηγὸς ἀπὸ κρήνης μελανύδρου  
ἀμφυτὰ καὶ κήπους ὕδατος ῥόον ἡγεμονεύει,  
χερσὶ μάκελλαν ἔχων, ἀμάρης δ' ἐξ ἔχματα βάλλων·  
τοῦ μὲν τε προρέοντος ὑπὸ ψηφίδες ἅπασαι  
ὀχλεῦνται· τὸ δέ τ' ὄκα κατειβόμενον κελαρύζει  
χώρῳ ἐνὶ προαλεί, φθάνει δέ τε καὶ τὸν ἄγοντα. II. Φ. 257.

There is an allusion in the book of Deuteronomy also to a custom in Egypt, familiar no doubt to every owner of a piece of ground or a garden there: "For the land, whither thou goest in to possess it, is not as the land of Egypt from whence ye came out, where thou sowedst thy seed, and wateredst it with thy foot, as a garden of herbs;" xi. 10. In after-times the country was irrigated with water pumped up from the Nile or out of the canals, by means of the helix or cochlias, invented by Archimedes<sup>a</sup>; but this is not what Moses implies in this passage: but something much more simple, the letting out of water from any reservoir or receptacle thereof in small rills or streamlets, intended to convey it among plants or vegetables previously disposed between ridges or in furrows: in which process, the human foot would be almost the only instrument required, either to let it out or to stop it up, or to divert it from one rill into another. But we cannot suppose that even in Egypt, and for such a purpose as this, small spades or paddles would not be used as well as the human foot. If so, what could be a more natural and obvious symbol of an epoch, regarded as the head of a stream, that is, a reckoning of time, of any kind, than such a spade or paddle? Now, besides the figures which we have already described on this sculpture, and besides the three pillars or cippi which we have concluded to be meant of the three lunar terms, anterior to the epoch of the Apis cycle properly so called, there are also *three* other figures represented upon it, under the three stars cut off by the horn of the cow; which resemble nothing in shape and appearance so much as

<sup>a</sup> Diodorus Sic. i. 34. Philo-Judæus has described this machine too.

time: and though in the course of this first period, and as the consequence of the first of the two miracles of Scrip-

three small spades or paddles. We have searched for these figures in the Chevalier Bunsen's lists of symbols; but we have met with nothing of the same kind, except No. 7 among the phonetic signs, (p. 567,) which the Chevalier describes as the image of a *borer*, i. e. an instrument for boring, of some sort or other. But why a figure which presents nothing but the outline of a small spade or paddle, and in that respect is perfect or complete of its kind, should be confounded with an instrument for boring, we cannot tell. The reader may judge for himself, whether the figure to which we allude is any thing but that of a small spade or paddle. If it is not, we take it to be the representation of one of the most familiar objects among the Egyptians imaginable; the paddles, of which they made use to let the water into their gardens. It is therefore an appropriate type of the epoch of a reckoning of any kind, through which the stream of time too is first let out. The Apis cycle had three such epochs at this very time, the three first days of every lunar month in the cycle—before that on which the proper reckoning of the month by the calendar began; the *luna quarta*. These figures are three in number too; and they stand under the three stars cut off by the left horn of the cow, by which too we have already concluded that the same three epochal lunar terms are meant.

Again, under each of these kneeling figures, and under the three pillars or cippi in each instance, we perceive what at first sight would seem to be the usual hieroglyphical symbol for water, or any other description of fluid, supposed to be in motion; viz. two wavy or zigzag lines. It is difficult however to imagine a reason why the proper symbol of water, and of water in motion, and in its proper sense, should have been introduced here. These two lines in each instance being more narrowly examined are found to be rather a combination of angles, (one running into another, one inserted within another,) than wavy or undulatory lines properly so called: and these angles in each instance are clear and sharp and well defined. Now we hope to make it appear on a future occasion, that one of the oldest, the most significant, and on every account the most authentic, modes of representing unity hieroglyphically, was by means of two *straight lines* meeting in an *angle* or point. These lines are made up of such angles, and so composed. Each angle therefore may be the symbol of unity: and consequently all together they may be the symbol of many units. If we count them, we find that there are 14 under the upper figure and 12 under the lower: under both consequently there are 26: that is, just the number of the stars represented along the edge of the sculpture at the top. If these 26 stars denote the 26 lunar  $\phi\omega\tau\alpha$  of the calendar Apis month; these 26 angles or units may denote the same too: and in our opinion this is their real meaning. They are the 26 light days of the calendar Apis month. We have only to explain, if possible, why they are disposed in this manner, 14 under one figure, and 12 under the other, instead of 13 under each alike, or 26 under one of them in particular. Now



ture, this recession must have been increased by 12 hours of mean time *extra ordinem*; we will assume for the present (and hereafter we hope to shew) that the proper relation of the epoch of the Phœnix cycle to the mean vernal equinox

to have disposed of them equally between the two figures, 13 under each, might have led to the inference that they were meant of the number of days in the lunar mansion; which would have been a mistake. It might not appear proper to dispose of them all under either of the kneeling figures, for that would have made them tautological with the 26 stars; which they were not intended to be. The probable reason of their actual disposition, such as it is, we conjecture to have been as follows. Fourteen is the number of lunar terms between the *luna prima* and the *πανσέληνον* or calendar full moon; which is the natural middle term of the lunar month. The first of the 26 terms in question then being assumed as the first day of the calendar lunar month, the last of these 14 terms is the 15th, or calendar *πανσέληνον*, the middle term of the calendar month: and these were all placed under the symbol of noon, and of the upper meridian, probably to intimate that, until the moon arrived at the full, she had more to do with the upper meridian than with the lower: for her first transit after the change, and for several days in succession, takes place in the day-time; i. e. over the upper meridian, like those of the sun. These 14 terms being thus assigned to the first half of the month, the remaining 12 must be assigned to the second. These 12 extended from the calendar 15th, (the calendar *πανσέληνον*,) to the calendar 27th, the end of the natural lunar month in the calendar month at this time. And these were disposed under the lower meridian; because, from the full of the moon and thenceforwards, the proper transit is over the lower meridian, and in the night-time as such. We may observe also, that both those 14 first terms and these 12 last terms, of the 26 made up of both, stand under the same symbol of the ternary number, in the shape of the three cippi or pillars, though under a different meridian; and those three pillars being types of three fixed lunar terms, that would seem to imply that, if the 14 terms began three terms from the beginning of the month, the 12 must end three terms before the end. And this would be strictly the case with two such things as the natural month and the calendar month compounded together in the Apis cycle of this time. The calendar epoch being the *luna quarta* at this time; the *luna prima* of the calendar was the *luna quarta* of the natural lunar month. The latter then began three days or three terms complete before the former; which explains the three pillars over the 14 angles or units in one of these cases. The 27th *luna* of the calendar, on the contrary, was the 30th *luna* of the natural month. The latter therefore ended three days complete before the former; which explains the three pillars over the 12 angles in the other instance.

Lastly, under the second of these combinations of angles, there is the figure of a bird of prey; which, as far as we can comprehend it, appears to be that of a vulture. The vulture was a type of the upper hemisphere;

would continue the same as before. The mean vernal equinox therefore for the meridian of Heliopolis, B. C. 1347, would be found falling *de facto*, as our Tables shew, April 4, 15 h. 32 m. 8 sec. 48 th.

and that may account for its introduction here; since every thing as yet described exterior to the cow belongs to the upper hemisphere.

There are yet two figures exterior to the cow, one in front of it the other behind it; both however with their faces turned to the cow, and both as it were adoring or saluting it. These figures are *communis generis* with those which are represented under the belly of the cow, only larger than they, all but the figure in the middle, which is that of Hercules Lunus. The general appearance, the dress, the attitude of all these figures are so much the same, that they must be set down to one category. They are all merely the same idea represented by a different person; and, did we know what was meant by any one of them, we should know the meaning of each of the rest. And as the principal figure, that of Hercules Lunus or Khons in the centre, is clearly a lunar impersonation of a certain kind, the rest must be so too.

Now we have already concluded that whatsoever is found in this sculpture, *exterior* to the cow, belongs most probably to the Apis cycle in contradistinction to the lunar mansions: and this conclusion is strikingly confirmed by these two figures, and by a fact connected with the Apis cycle which we have never yet duly explained, but which we hope both to explain and to confirm, when the proper time for so doing arrives; viz. that the Apis cycle of later date was directly derived from an older cycle of the same kind, which was coæval with the primitive solar calendar itself. This primitive Apis cycle bore date on the *phasis tertia*; that is, it had two epochal lunar terms anterior to the proper calendar epoch of the cycle itself. In our opinion, these two figures, both exterior to the cow, and therefore distinct from the lunar mansions, one in front of the cow, the other behind it, are these two epochal terms of that primitive calendar. The prominence assigned them in point of size shews that they were no ordinary ideas of their kind: as the epochal terms of mundane lunar time itself could not be. One fronts the cow, and receives as it were the *πρῶτον βῆμα*, the first step in advance, of the cow; because the march of time from every epoch or initial term is necessarily progressive or forwards. The other is behind it, but looks the same way as the cow; because even the forward march of time from a given point is but the continuation of the same kind of march from a point behind. An epoch, like the Janus of antiquity, has two faces; and looks both backwards and forwards at the same time.

With regard to the figures under and within the belly of the cow; there are seven which answer most properly to that description, each dressed alike and therefore all *communis generis*; three of smaller dimensions on either side of the one in the middle, which is the largest and most conspicuous figure in the whole representation. We have already

There can be no doubt that, agreeably to the plan laid down at the epoch of the Phoenix cycles, B. C. 1847, the

seen that this is the figure of the Egyptian Khons, the impersonation of the lunar mansions; the thirteen stars, the proper symbol of which, are over his head. The six therefore associated with him, three on either side of him, and similarly represented in all respects except that of size, are similar impersonations. Now it will materially contribute to explain these combinations and these distinctions to know that, though the proper date of the lunar mansions B. C. 1847 was April 8 at noon, the proper date of the new moon the same month was not April 8 but April 2; and that this new moon too, for the meridian of Heliopolis, (as we discover from actual calculation,) fell out on April 2 very nearly at noon. There were consequently six lunar terms complete, between April 2 at noon, and April 8 at noon. In our opinion these six figures associated with Khons Lunus denote those six lunar terms, anterior to the epoch, April 8, B. C. 1847. Khons Lunus, the principal figure in the group, is the type of the epochal term of the mansions, the proper date of which was April 8 at noon, B. C. 1847: these six minor figures are the types of the six ante-epochal terms, the first, the second, the third, the fourth, the fifth, and the sixth lunæ, the dates of which were April 2, 3, 4, 5, 6, 7 respectively; each a sacred idea in itself, but all subordinate even in that respect to Khons Lunus, the abstraction of the mansions, and the proper representative of the first term of the number, in the sense of the epoch at least.

Besides the figures under or about the cow, in the interior too, which we have thus described—there are two more, one in the forepart of the cow, the other on the hinder, each of which is represented in a frame or boat. The Egyptians never represented any but their gods, or such conceptions of their own as they esteemed divine, standing or sitting in boats. One of these has the lunar disk on its head; from which we may infer that it is probably intended of the Egyptian Thoth. And that is further implied by the nature of the other figure, which appears to be meant for a Cynocephalus. The Cynocephalus was a satellite of Thoth's: and his presence in this representation would be a sure intimation that his proper lord and master Thoth could not be absent from it. Thoth is standing up in his own boat, looking the same way as the cow, that is, forward, in the natural direction of time itself; with his hands lifted up, as if to salute the first motion in advance of the cow. And in front of him there appears to be the figure of two *posts*, joined at the top by two cross bars; and also of a sort of door-way, or gate-way. We do not profess to understand the meaning of these symbols exactly; but we conjecture that they refer in all probability to the original epoch of the Apis cycle, and to the lunar mansions; the two posts to the former, and the gate-way or door-way to the latter. The Cynocephalus is sitting in his boat; but looking towards his master Thoth. There is in front of it too, what looks like the representation of a gate-way or door-way; and therefore may here also be intended of the lunar mansions, which were so many lunar houses, into each of which

sphere would be revised at this point of time, preparatory to its being laid down again for the decursus of a second period of 500 years: and it would be found, on this revision,

in its turn the moon entered by such a gate-way or door-way as this. On this principle, while Thoth, in front, has the charge of both cycle and mansions, and keeps the account of both from the first in general; the Cynocephalus, his secretary behind him, has the charge and keeps the account of the mansions in particular. And on this account this sitting figure seems to have been furnished with what on this principle may be supposed to have been a reed; that is a pen in the shape of a reed: *σχοῖνα γὰρ (Αἰγύπτιοι) γράφουσι*, (says Horapollo, i. 38.) *καὶ οὐκ ἄλλω τινί*. The scribe of Thoth must be able both to read and to write and to cast accounts; and there was a learned family of Cynocephali, says Horapollo, i. 14, which knew its letters without being taught: *Ἔστι συγγενεία κυνοκεφάλων Αἰγυπτία ἐπισταμένων γράμματα παρ' ὃ (qua propter) εἰς ἱερὸν ἐπειδὴν πρῶτα κομισθῇ κυνοκέφαλος δέλτον αὐτῷ παρατίθησιν ὁ ἱερεὺς καὶ σχοινίον καὶ μέλαν· πειράζων εἰ ἐκ τῆς ἐπισταμένης ἐστὶ συγγενείας γράμματα, καὶ εἰ γράφει*.

In this part of the sculpture also we perceive there are two cippi or pillars; one just behind the first boat and the figure of Thoth, the other behind the second and the figure of the Cynocephalus; the former too considerably larger than the latter. Both these pillars are covered with characters, and characters very much alike in their form and appearance; and characters which we do not doubt were intended to have some meaning. But this part of the representation is that which has suffered most from the effect of time; and it may very well be questioned whether the appearance and traces, which each of these pillars exhibits at present, can be relied on as those which it exhibited at first. Some of these characters resemble the small pillars which we have already conjectured to have had some connection with the idea of an epoch, in the sense of fixedness: others look more like the lunar crescent. We are unwilling to hazard any mere conjectures respecting their probable meaning and explanation; though such might be proposed.

We cannot however conclude these remarks without calling the attention of the reader to a group of figures under the belly of the cow, and on the left of the first and largest of these two pillars; each of which in the original, from which our copy was made, is very distinctly represented. The first of these is the figure of a bird, which is plainly intended for a goose. It stands under the thirteen black stars, and almost in a line with the second of them on the right. Under this goose is a figure, the outline and appearance of which (though somewhat obliterated by the effect of time) is evidently similar to that of the kneeling figures which we have conjectured to stand for the idea of a meridian; only somewhat reduced in size. And under this figure there is a wavy line, similar to those which appeared under each of those kneeling figures exterior to the cow also;



that, on the principle of reducing the tropical or moveable sphere perpetually to the fixed and immoveable sphere of Mazzaroth, the first and most cardinal point of the former, the ingress of the mean sun into the first point of Aries, was now falling on the 12th degree of the latter; as at the beginning of the first Phœnix period it had been falling on the 15th. For the perpetual date of the sphere of Mazzaroth being March 24 at mean noon; the twelfth day from that fixed date must necessarily fall on April 4 at mean noon: and April 4 at mean noon, on the day of the ingress of the mean sun into the first point of Aries, according to the Phœnix rule, was the proper epoch of the Phœnix cycle. And days, in this reduction of the two spheres one to the other, being assumed as equivalent to degrees; it is manifest that a second revision of the sphere laid down, under such circumstances as these, in the first degree of the tropical sphere

and on examination this too is seen to be made up of angles, or lines meeting in an angle, as those also were; the number of these angles in this instance being exactly six.

Now the goose, it is agreed, was the hieroglyphical type of childhood or infancy: consequently it must have the power of denoting any thing in its nascent or initial state. It might therefore denote the *new moon*, the moon of the change, the moon just born, the young or infant moon. The figure underneath this goose, we have already discovered, may stand for noon: and the six angles underneath this figure still more certainly for six units; for the number six in a particular instance, and the parts of which it was made up.

The final end therefore of this entire group, composed as it is, and disposed as it is almost vertically under the first of the stars which denote the lunar mansions, in our opinion, was neither more nor less than to designate and point out the epoch of those mansions in terms of their proper moon; the point of noon, six days after the new or the change of that moon; i. e. noon on the luna septima of the proper moon. The uppermost figure is the type of this new moon; the middle one is the type of noon: and from both these, along with the lowest or third one, we learn that the change of that moon happened at noon; the luna prima was dated from noon; and the first of the mansions was dated at noon too but six lunar terms later than that; i. e. on the luna septima at noon. Such appears to be the meaning of this group. We will add only that it is confirmed by the matter of fact; for it turns out on calculation, as we hope to see hereafter, that the new moon of April, B. C. 1847, actually fell out April 2, as nearly as possible at noon; and the epoch of the mansions was April 8 exactly at noon too; i. e. just six lunar terms later.

must have been laid down in the 12th degree of the sphere of Mazzaroth.

Now the second division of the sphere, traditionally known to the ancients, as we have already learnt from the testimony of Achilles Tatius<sup>c</sup>, was said to have been laid down in *duodecimis partibus*. We now see that there was always an historical foundation for this statement; and we see also in what manner it was always to be understood; and as so understood how consistent it must have been with the truth, notwithstanding the *prima facie* contradiction implied in the statement itself, that the first degrees under any circumstances should be the same with the twelfth, or that the cardinal points could be rightly assumed and yet attached to the twelfth degrees of the sphere. We see too that as tradition and testimony attested each of these facts alike, (an edition of the sphere in *quintisdecimis partibus*, and an edition in *duodecimis partibus*,) and as on the faith of testimony we should be bound to believe in both alike; so there was in reality no incompatibility, no inconsistency, between them. One was just as real and just as true, in its own order of time, as the other; though both could not be real and both could not be true at once. Nor does it appear that tradition and testimony ever asserted that they were. The lunar mansions too combined with the sphere from the first were no doubt revised at this same time; though in what manner, and to what effect, we reserve for future consideration.

It is not indeed in our power to verify and confirm the details of this second type of the sphere in Egypt with the same circumstantiality as those of the former; because of the want of data. But the testimony of Achilles Tatius, which authenticates the fact of the existence of a sphere laid down in *quintisdecimis partibus*, authenticates also that of another laid down in *duodecimis partibus*. The rule of the Phoenix cycle would necessarily require the revision of the first sphere at the proper time: and the fact of the actual publication of a third sphere, at the epoch of the third Phoenix period, and laid down in *octavis partibus* just on the same principle and according to the same analogy as the first in *quintisdecimis partibus*, (a fact attested and authenticated by

every proof which can be desired,) can leave no doubt of the intermediate publication of a second, and at the epoch of the second period, and laid down, on the same principle and according to the same analogy, in its proper order of time, *in duodecimis partibus*.

We are not however altogether destitute of testimony *ab extra* even to the existence of this second sphere *in duodecimis partibus*; distinct too from that of Achilles Tatius. The Bactrian reformer, the first Zoroaster, was living and correcting the primitive calendar, B. C. 947. If he was acquainted with any form of the Egyptian sphere, it was most probably this, *in duodecimis partibus*. We know not indeed whether he left any writings behind him; but we know that a Zoroaster, a magian philosopher, is often quoted by the ancients: and though this should be the second Zoroaster, not the first, yet if the former assumed the name of the latter, and revived his theology and his philosophy, he might borrow largely from his works too, if he left any behind him, and make use of them as his own.

There is reason to infer from the Zendavesta, attributed to this Zoroaster, and translated by Anquetil du Perron, that it recognises both the division of the sphere *in duodecimis partibus*, and the 28 lunar mansions<sup>d</sup>: and in the time of the second Zoroaster that division was so completely antiquated, and so generally superseded by that *in octavis partibus*, that if any sphere was so recognised it must have been the sphere of the first Zoroaster. It could not have been that of the younger. A certain Zoroaster too is quoted among the other authorities in the Geoponica, as a writer on the Res Rustica. Pliny has made us acquainted with a rule or direction of a writer so called, and on the same subject; which appears to recognise the division *in duodecimis partibus*, and so far might have been a genuine precept of the Bactrian Zoroaster himself. Adjecit iis Accius in Praxidico, ut sereretur cum luna esset in Ariete, Geminis, Leone, Libra, Aquario. Zoroastres sole duodecim partes Scorpionis transgresso, cum luna esset in Tauro<sup>e</sup>.

<sup>d</sup> Zendavesta, iii. p. 349. (Boundesch, ii.) Cf. Bailly, *Astronomie Ancienne*, Eclaircissements, livre ix. § x.

p. 480, and § xx. 491.

<sup>e</sup> H. N. xviii. 55. p. 279.

Now the 12° of Scorpio in the sphere of Mazzaroth was the 1° of Scorpio in the tropical sphere of the second edition: and Scorpio being the sign next to that of the autumnal ingress, it was the natural beginning of seed-time, properly so called, almost every where\*. In the sphere of Mazzaroth the 12th of Scorpio would fall on November 3: and no one will suppose an earlier term than November 4 would be natural for seed-time in Bactria or Persia. But any time after that might be, even there. The addition too, *cum luna esset in Tauro*, is significant. The proper house of the moon in the astrological division of the houses was Cancer. But among the Egyptians, especially from the time of the introduction of the fable of the Apis, and of the institution of the Apis cycle, (26 years at least before the time of the Bactrian Zoroaster,) the moon was closely associated with Taurus. The Apis was a bull, yet related to the moon as much as to the sun. In the Persian system of theology and cosmogony, the moon was Mithras, as well as the sun; and the Bull was the type of both: and as we have already explained, the first principles of life of every kind, animal and vegetable, having been created and deposited, according to this system, in the solar Bull, were afterwards transferred to the moon. The Persian cosmogony or theology does not appear to have differed in the slightest degree from the Bactrian. The latter, in fact, was the original of the former. Nothing would be more natural then and more consistent than to find the Bactrian Zoroaster prescribing as a rule that seed should be sown, at the proper seed-time indeed in the natural year, but when the moon was in Taurus.

It is far from improbable also, that the *Δωδεκαἔτηρις* of antiquity, or peculiar cyclical period of twelve years, might have some connection in its origin with this division of the sphere in *duodecimis partibus*. A *δωδεκαἔτηρις* is attributed

\* Thus Nonnus, xlii. 284, where Bacchus is speaking to Beroë:

᾽Ωράων πισύρων νοέων δρόμον ἵσταμένην δὲ  
νύσσαν ὀπιπεύων φθινοπωρίδα τοῦτο βοήσω  
Σκορπίος ἀντέλλει βιοτήσιος ἔστι δὲ κήρυξ  
αὔλακος εὐκάρποιο βόας ζεύξωμεν ἀρότρῳ.



to Orpheus ; and fragments of it have been preserved<sup>f</sup> : whether a genuine production of the Orpheus of antiquity may well be doubted. But if there was ever such a person as this Orpheus, (and of that we do not doubt,) it is certain his time was later than the second revision of the sphere, but before that of the third ; and that he visited Egypt. If he knew of any form of the Egyptian sphere, it was most probably this second one. A δωδεκαῆτηρὶς is attributed to the Chaldees<sup>g</sup> ; which appears to have been closely connected with their astrological system : and though the Chaldees had a sphere of their own, its date falls in the second Phœnix period of the Egyptians, and the first idea of it, as we hope to shew hereafter, was borrowed from the Egyptians. A δωδεκαῆτηρὶς is recognised in the Geoponica<sup>h</sup> ; which appears to have been formed on the period of the planet Jupiter, because that describes one of the signs of the ecliptic as nearly as possible in one year, and the whole circle of the ecliptic in about twelve years and five days<sup>i</sup>. It might be worth while (if astronomers did not object to the trouble) to calculate the actual place of this planet in and among the signs, at the epoch of the second Phœnix period. The existence of this dodecaëteric period of antiquity is an acknowledged fact ; and it is still to be found among many of the nations of the east, connected with the signs of the zodiac<sup>k</sup>.

SECTION II.—*On the imposition of names upon the signs of the ecliptic at the epoch of the first revision of the sphere, and of the second Phœnix period.*

The most important and most interesting fact however, connected with the history of this second type of the sphere of Mazzaroth and of the tropical sphere in conjunction, is this : That names were given for the first time to the signs of the ecliptic, (the original divisions of the sphere of Mazzaroth,) when this type was laid down. Not that ζώδια, or figured representations of any kind, were now introduced into the sphere ; but that something was now done for the

<sup>f</sup> Cf. Tzetzes, Chiliades, xii. 152. Histor. 399. Also, Ad Lycophron. 523.

Orphica Fragm. xxxvii.

<sup>g</sup> Censorinus, De Die Natali, xviii.

<sup>h</sup> i. 12. p. 17. Zoroastris.

<sup>i</sup> Bailly, Astronomie Ancienne, livre v. § ix. 141.

<sup>k</sup> Cf. Scaliger, De Emendatione, ii. 100, 101.

first time, which led in the event to that; and which must some time or other be done first, if the other was to be done in due time also, yet without any prejudice to the natural course of such a process as that of making animal figures out of the signs of the ecliptic.

It was evidently a different thing to give such and such names to the signs, and not only to give them such names, but to represent or delineate whatsoever was denoted by such names on the signs themselves. These two things are so clearly distinguishable in the principle and in the effect, that it would be contrary to reason and common sense to suppose that the former could not be done, without the latter's being done at the same time also. It would be equally contrary to all reason and all analogy to suppose the last act or stage in a certain process to be the first conceived, or the first to be carried into effect. There is so little connection between the names of the signs, or the things denoted by those names, and the signs of the ecliptic or the stars contained in those signs, that we must allow time and space for the operation of the usual laws of cause and effect, before we could reasonably suppose any such incongruous and unnatural result as the transformation of stars into ζώδια.

The first step towards this ultimate result was the division of the zodiac into the lunar mansions; which necessarily included a division of the stars in the zodiac also, and thereby the separation of some from the rest, and the formation of groups or assortments, even among the stars in general, approaching to the nature of constellations. And such portions of the stars having been once numerically and locally separated from the rest, men would soon be rendered familiar to the idea of regarding them as actually distinct from the rest, and as constituting a whole of their own.

The next step would be to give names to the signs, to the δωδεκατημόρια or twelve equal divisions of the zodiac itself; which names would necessarily include such and such of the mansions also, and through the mansions the stars comprehended in the mansions. And from this time forward, when each of the signs had come to have its proper distinctive appellation, as well as its proper space or aliquot part of the heavens, and its proper assortment of stars contained within

its own limits; it is easy to see that these stars themselves, which men had already begun to regard in the light of constellations or collections of stars in one, which distinguished them from the rest in the heavens besides, would now begin to be associated with certain ideas—through the very names which had been given to the parts of the heavens where they were to be seen; with which ideas they could not possibly have been associated in any other way.

The last step therefore in the process would be to make ζώδια, properly so called, of the portions of the zodiac called by those names, and of the stars which were found therein. And it is manifest that, under such circumstances as these, what must otherwise have been the most difficult part of the process, would be the simplest and easiest of all. For when men had once been accustomed, through the name of the sign, to regard it habitually as typical of something, however distinct from itself, yet some well known object of sense, denoted by the name, (as for example, a Ram, or a Bull,) what would be more likely to occur to them than to imagine the *figure* of such an object actually represented *within* the sign? and what would be easier than, if they thought proper to do so, to lay it actually down in the sign, to draw its picture in the sign? And if this was to be done, the very act of doing it would dispose of the stars also, within the sign, in and about the picture, in a manner in which they never could have been disposed of otherwise, so readily and so obviously at least. And without the slightest disturbance of the position of any one star within the sign, or any change of its relation to the rest, (even had that been possible,) it would lay down every one in its proper place and order on the body of the object, as nature had already disposed it in its place and order within the sign. And it is clear, on this principle, that this process of katasterization at last, in the sense of zodiofication, (if we may be pardoned the use of such a term,) could never have been the adaptation of a given number of stars, within a certain space, to a body previously fixed on; but on the contrary, the accommodation of a body of a certain form and shape to a certain space, and to a certain number of stars contained in that space. By such means as these, and by virtue of such a process as this, it would be

a possible and practicable thing to make any figure out of any number of stars. On any other principle, it must have been morally if not physically impossible to obtain any figures or shapes from the stars, but such as nature had pre-disposed them to fall into, by the combination of lines and angles in various ways.

These different steps of the same process however were not all gone through at once; and that is the point to which we desire to direct the attention of our readers at present. It required in reality a thousand years to complete it. The first part of the process, such as we have described it, characterises the epoch of the first Phœnix period, and of the first type of the sphere. The second, that of the second period and second type; the third and last, or the final formation of the ζώδια which have given their names to the zodiac, out of the signs and out of the stars comprehended in the signs, if we are not mistaken, characterises only the third period and the third type of the sphere; a thousand years later than the first.

SECTION III.—*On the name given to the first sign, Κριός, Κριών, Aries, Krion; or the Ram.*

We shall now therefore proceed to consider each of these names in brief, or as briefly as may be practicable; and to assign the reasons which to the best of our judgment appear to have influenced the Egyptians in choosing such names, and in imposing them on the corresponding signs.

The first of the signs is known by the name of the Ram: Κριός in Greek, Aries in Latin, Κριών or Krion in the sphere of Mazzaroth. It has been already shewn<sup>1</sup> that the sphere of the Egyptians was always graduated from the vernal sign; and there can be no doubt that the name of this sign in the Egyptian sphere, from the time that it had a proper name at all, was this of the Ram. It may be taken for granted too, that the first sign in every sphere, and not merely in the Egyptian, never had any proper name but that of the Ram.

In our own work on the Exposition of the Parables of the Gospel, we had occasion to collect the testimonies of antiquity, (and more especially those of the Old Testament,) to

<sup>1</sup> Ch. iv. sect. 4. p. 280.



a certain peculiarity of the pastoral habits of the east: viz. That the sheep, in the east, from time immemorial was trained to follow the shepherd. It is necessary that we should refer our readers to those testimonies on this particular question also <sup>m</sup>. The natural instinct of the sheep induces it to follow the Ram: and in the east both the sheep and the Ram were taught and disciplined to follow the shepherd. We observed at the time <sup>m</sup>, that the pastoral habits of the east in this respect were strikingly contrasted with those of the west, where no such custom appears to have prevailed; so much so, that neither in the rest of the classical poets, nor even in the bucolic poets among the Greeks or Romans, can any allusion to such a custom be found. We quoted however one passage from Apollonius Rhodius, (who had no doubt become familiarly cognizant of the custom in Egypt, where he himself was born,) in which it was distinctly recognised; and we might have quoted another, wherein he alludes to it also, had we not overlooked it at the time. He is describing the flock of Circe, which he compares to sheep following their shepherd from the pen or fold:

Οὐδὲ μὲν οὐδ' ἄνδρεσσιν ὁμὸν δέμας, ἄλλο δ' ἀπ' ἄλλων  
 συμμιγέες μελέων κίον ἄθροοι, ἥϋτε μῆλα  
 ἐκ σταθμοῦ ἄλῃς εἰσιν ὀπηδεύοντα νομῇ <sup>n</sup>.

With regard however to this natural disposition of the Ram to march at the head of the flock, Homer has founded a simile on it <sup>o</sup>:

Ἀὐτὰρ ἔπειτα  
 λαοὶ ἔπονθ' ὥσεί τε μετὰ κτίλον ἔσπετο μῆλα  
 πιόμεν' ἐκ βοτάνης.

And the same idea lies at the bottom of the allusion to Agamemnon which he puts into the mouth of Priam <sup>p</sup>:

Αὐτὸς δὲ κτίλος ὡς ἐπιπωλείται στίχας ἀνδρῶν·  
 ἀρνείω μιν ἔγωγε εἴσκω πηγεσιμάλλω,  
 ὅς τ' οἶων μέγα πῶϋ διέρχεται ἀργενάων.

The word κτίλος is not the common Greek word for a Ram; and the grammarians of antiquity explain its application to that animal from this very circumstance in the natural habits of the Ram, that of its putting itself at the head of the flock,

<sup>m</sup> Vol. ii. 493-497.  
<sup>n</sup> iv. 673.

<sup>o</sup> Iliad. N (xiii.) 491.  
<sup>p</sup> Ibid. Γ (iii.) 196.

and of its leading them after itself. Thus the scholiast on the last quoted passage: Ὡς πρᾶος καὶ χειροηθὴς κριὸς, ἀφηγούμενος τῆς ποιμνῆς. εἴρηται δὲ κτίλος ἀπὸ τοῦ ἄγειν τὰ λοιπὰ θρέμματα, οἷον εἰ ἀκτίλος τις ὦν, παρὰ τὸ ἄγω ἢ παρὰ τὸ κίειν—Κτίλος· τιθασσός· πρᾶος· ἡγεμών<sup>q</sup>—Κτίλος· ὁ προηγούμενος τῆς ποιμνῆς κριὸς<sup>r</sup>—Στίλος ἢ κτίλος· ὁ προηγούμενος τῆς ποιμνῆς κριὸς<sup>s</sup>—Κτίλος· ὁ προηγούμενος τῶν προβάτων καὶ προεξάρχων τῆς ποιμνῆς κριὸς· παρὰ τὸ κίω τὸ πορεύομαι κίλος καὶ κτίλος· ἐτυμολογεῖται δὲ παρὰ (τὸ) κίειν (πρὸ) τῶν λοιπῶν, ἡγουν τὸ προπορεύεσθαι<sup>t</sup>.

In a metaphorical sense, transferred from this proper idea to that of the first in an actual order or series of any kind, it may stand simply for what would be denoted in Latin by *primus* or *princeps*; and it is so used by Pindar to designate Cinyras, the first of the hereditary line of priests of Aphrodite, as well as of kings, of Cyprus, whom he styles

ἱερέα κτίλον Ἀφροδίτας<sup>u</sup>.

And truly so too; since he was actually the first to introduce the worship of that goddess into Cyprus, and even to bring the abstraction of the Hellenic Aphrodite into existence at all. The *vetus Scholiasta* indeed, in his commentary on the allusion, calls in question this sense of the term, and refers κτίλος to κτίζω. Ὁμηρος μὲν τὸν προηγούμενον τῆς ποιμνῆς κριὸν κτίλον ὀνομάζει. ἡ δὲ τοῦ ὀνόματος ἐτυμολογία οὐχ οὕτως ἔχει· ἔστι γὰρ παρὰ τὸ κτίσαι, ὃ ἔστι θρέψαι· καθάπερ φησὶ καὶ ἐν ἄλλοις ὁ Πίνδαρος· Ὀρικτίου συνδός, τοῦ ἐν ὄρεσι τεθραμμένου. νῦν οὖν κτίλον οἷον εἰ τὸν συντεθραμμένον καὶ συνήθη λέγει καὶ εἰθισμένον τῇ χειρί· καὶ αὐτὸς γὰρ ὁ Πίνδαρος τὸ τιθασσεύεσθαι καὶ κτιλεύεσθαι λέγει· Ἐνθα ποῖμναι κτιλεύονται κάπρων λεόντων τε.

This commentary is in error. It errs in understanding κτίσαι as synonymous with θρέψαι, or ὀρικτίου in the sense of ἐν ὄρει τεθραμμένου, “bred up in the mountains,” instead of “created in the mountains,” or “by the mountains,” “the creature of the mountains:” and still more so, in supposing κτιλεύεσθαι simply the same with τιθασσεύεσθαι. Every one knows than an animal trained to follow its owner and

<sup>q</sup> Hesychius, ii. 360.

<sup>r</sup> Ibid. ii. 361. Cf. *Anecdota Græca* Oxon. i. 237. 20. Ἐπιμερισμοί, Κτίλος.

<sup>s</sup> Ibid. ii. 1271.

<sup>t</sup> *Etymologicum M.* 491.

<sup>u</sup> *Pythia*, ii. 31.

master is a tame animal. But every tame animal is not trained to follow its owner. No one ever heard of a wild ram in contradistinction to a tame ram ; a tamed boar, or a tamed lion, in contradistinction to one naturally wild, may have been heard of: yet even such are not necessarily so tamed as to follow their masters. It is evident that Pindar meant wild boars and lions reclaimed and rendered docile in the highest possible degree, by supposing that they were so tamed as to be κτῆλοι, or taught to follow a master.

Now the Mazzaroth of the sphere, the chambers or houses of the sun, each in its turn for one month and one sign throughout the year, being regarded in this light of a series or order of a certain kind, in which some one must precede and be the first; it was nothing unnatural to look upon it as a kind of flock; and to regard the first or principal sign, in this relation to the rest of the leader and conductor of the series, in the light of the Ram, who was ordinarily seen to walk at the head of the flock. This is no doubt the true reason why the name of the Ram was given to the first of the signs of the ecliptic; simply because it was the *first*; simply because the sphere itself always had been, and always must be, reckoned from the vernal equinox; and therefore, if that must necessarily be the first of the signs of the sphere in the common order and succession of all, it must precede the rest: and if they could all collectively be compared to the flock of Mazzaroth, this one must be the *ram* of the flock. Such must have appeared to Columella the natural explanation of the name of Aries, applied to this sign—

Mox ubi nubigenæ Phryxi nec portitor Helles  
Signorum et pecorum princeps<sup>w</sup>.

And Manilius seems disposed to account for the name of the second sign, Taurus, as well as for that of the first, on the same principle; because the Bull was naturally the chief or leader of the herd, as the Ram was of the flock.

Ut quæ terrena censentur sidera sorte,  
Princeps armenti taurus, regnoque superbus  
Lanigeri gregis est aries<sup>x</sup>.

To derive the Aries of the sphere from the Jupiter Ammon of antiquity is an anachronism, to say the least: for it will

be seen hereafter, we trust, that when names were first given to the signs neither the Ammon of Libya, nor the Ammon of Thebes, nor any other arietine divinity of antiquity,

ἔτι ἔφυσε φράτορας, i. e. κέρατα—

he had neither horns nor head as yet: and that in reality these arietine conceptions of the deity were every where taken from the Ram of the sphere, and not the Ram of the sphere from any of them.

The names of the different signs of the ecliptic naturally remind us of the figures or characters, which are commonly substituted for them in books of astronomy, as a kind of cypher of the name, or as an hieroglyphical symbol of the idea conveyed by the name. It is a curious question, whether these too are as old as the names of the signs? that is, were invented by those also who gave names to the signs? and at the same time? Whether they were devised by the Egyptians or by the Arabians? whether, though not so old as the first imposition of names on the signs, they were contrived by the Egyptians some time or other, and attached to the signs along with the names? We have not seen any attempt to answer such questions as these; nor in fact any explanation of what may be supposed the original meaning of these symbols; except a very brief one in Bailly's. We have seen reason ourselves to conclude that these too were really the contrivance of the Egyptians; but not before the date of the third and last revision of the sphere. We shall notice these characters therefore as we proceed; and offer such explanations of their primary meaning as may appear to us to be most probable. There is no obscurity about some of them; as for instance that which is commonly proposed as the character or symbol of the sign Aries: for this is evidently the head and two horns of the Ram itself, in outline or profile. So that the character of the sign in this case is just as plain and intelligible as the name.

SECTION IV.—*On the name given to the second sign, Ταῦρος, Taurus, Ταυρὸν, Tauron; or the Bull.*

It seems to have been the opinion of the learned Varro, among the Romans, that the name of the Ram was given to



the first sign of the sphere, and that of the Bull to the second, by way of memorial of the high value which the ancients set on those two animals, and as a kind of acknowledgment for the services which they rendered to men. Quod si apud antiquos non magnæ dignitatis pecus esset, in cœlo describendo astrologi non adpellassent eorum vocabulis signa; quæ non modo non dubitarunt ponere, sed etiam ab his principibus xii signa multi numerant, ut ab Ariete et Tauro; cum ea præponerent Apollini et Herculi: ii enim dii ea sequuntur, sed adpellantur Gemini<sup>z</sup>.

According to some<sup>a</sup>, the Bull in the heavens was Io.

Hoc alii signum Phariam dixere juvencam,

Quæ bos ex homine est ex bove facta Dea.

According to Ovid himself<sup>b</sup>, it was the Bull which carried Europa: an explanation of the name, which, as we may possibly see hereafter, goes back very nearly to the time of its actual imposition on the sign; and connects it also with the true meaning and reference of the name in a manner of which it is very probable Ovid himself was not aware. The Arabic name of this sign, or one of the Arabic names, is Ataur, or Ator<sup>c</sup>: which is evidently the same with the Egyptian Athyr—Ator or Venus; and she was only another conception of the Egyptian Isis. There was also a close connection between the moon and this sign; the origin of which appears to have been the connection of the moon with Isis through the Apis cycle more particularly, and the connection of Isis with this sign for the same reason also. Σελήνην τε οὔσαν γενέσεως προστατῖδα Μέλισσαν ἐκάλουν. ἄλλως τε ἐπεὶ Ταῦρον μὲν σελήνη\* καὶ ὕψωμα σελήνης ὁ Ταῦρος<sup>d</sup>.

The name of the Bull however was given to this sign though not before the invention of the fable of Osiris and

\* We should probably read here, Ἐπεὶ Ταῦρος μὲν Σελήνης. Cf. xxiv de Mithra; Ἐποχείται δὲ Ταῦρος Ἀφροδίτης.

<sup>z</sup> De Re Rustica, ii. cap. 1. § 7. Cf. Columella, vi. Præf. § 7.

<sup>a</sup> Ovid, Fasti, v. 619.

<sup>b</sup> Ibid. 603–608. Cf. Scholia ad Germanici Caesaris Aratea Phænomena, 173. Nonnus, Dionysiaca, i. 355–361. Cf. ii. 281.

<sup>c</sup> Bayer, Uranometria, p. 44. Tabula xxiii.

<sup>d</sup> Porphyry, De Nympharum antro, xviii. (Goëns, 1765). Cf. Horapollo, i. 10: Proclus in Tetrabiblum, i. xxii: Orpheus, Hymni, ix. Σελήνης, v. 2: Servius, ad Æneid. viii. 590: Nonnus, Dionysiaca, i. 219 sqq.; 331. 454. 499; ii. 284. 406; iii. 431; v. 71: xi. 186: xii. 5: xxiii. 309: xlvii. 283: xlviii. 320 sqq.

Isis, yet long before the institution of the Apis cycle, and the rise of the fable which first established a connection, in the ideas and apprehensions of the Egyptians, between Isis as the moon and the Bull, and through the Bull with this sign. And it was given to this sign in particular, in our opinion, for two reasons: one, that though this was the second sign in the tropical sphere, B. C. 1347, it was still the first sign in the sphere of Mazzaroth; and at the beginning of things it had been the first sign in the tropical sphere itself. The Egyptians well knew that the first vernal equinox, and the beginning of annual tropical time itself, fell out in this sign; and that the horns of the Bull, which were now standing in mean longitude  $36^{\circ} 57' 15''$ —at the beginning of things were standing in mean longitude  $0^{\circ} 0' 0''$ : that no sign, in short, had so good a right to be considered the true natalitial sign of the world as this: that the sun and the moon and the planets, and all the heavenly bodies, the motions of which were most closely connected with the present world and system of things, might be said to have been born in this sign.

The other reason was that both at this time, B. C. 1347, and long before this time, though not so far back as the date of the first Phoenix period, B. C. 1847, they had already a sacred bull among them, dedicated exclusively to the sun, and kept at Heliopolis; the city and domicile of those very priests, who at this identical time in all probability were taking the lead in this business of giving names to the signs. This fact is sufficient to explain the name of this sign; which, as the first sign in the primitive tropical sphere, as the first sign still in the sphere of Mazzaroth, as the natalitial sign of mundane time itself, must have been considered peculiarly sacred to the sun—their own Ra or Phre; and so fit to bear the name of no animal as that of his own type, the Bull, already consecrated to him, and the tutelary genius of Heliopolis itself. Why they had pitched on the bull, as the type of their Ra or Phre, and not on any other domesticated animal in its stead, is another question; which must be reserved for the time when we come to treat of their Mneuis cycle.

The character of this sign too is just as simple and obvious

as that of the preceding; being merely the *caput bubulum* with the two horns, in outline. As we observed, on a former occasion<sup>e</sup>, the προτομή or forequarters of the Bull of the sign only are asterised; and it is laid down on the zodiac with the head and the horns in particular facing the east, and therefore the last to rise. The two stars βῆτα and ζῆτα Tauri, on the two extremities of the horns themselves, are the most easternly part of the figure. They were, no doubt, purposely so disposed; and their position itself in all probability was intended to intimate that the direction of time, like that of the sun in the ecliptic, is always forward or εἰς τὰ ἐπόμενα; and that both time and the sun itself, in the first instance of all, set out from between these horns; which must necessarily therefore look in the same direction perpetually.

SECTION V.—*On the name of the third sign, Δίδυμοι, Διδυμῶν, Gemini, Didymon; The Two, or The Twins.*

The number of different persons, supposed to have been denoted by the peculiar name of this third sign, (which is merely that of “the Twain” or “the Two”) is a good argument that for some reason or other this sign in particular was never known or called by any name but that of *Gemini*, τοῖν δυοῖν, οἱ δύο, or “the Two.” Out of this the Greeks made Castor and Pollux, Apollo and Hercules, Apollo and Iasius or Iasion, Triptolemus and Iasius, Amphion and Zethus, the Dii Samothraces, and other combinations of a similar kind<sup>f</sup>. The very peculiarity of the name however, and the uncertainty of the meaning intended by it, in our opinion, are a strong internal argument of the truth of the fact for which we are contending at present; the actual imposition of names on the signs, for the first time, at the epoch of the second Phœnix period.

For by this designation of the Two, and nothing more, (“the Twain” κατ’ ἐξοχὴν,) we are persuaded that the authors of this nomenclature, who only three years before had been

<sup>e</sup> Supra, ch. iii. sect. iv. p. 258.

<sup>f</sup> Hyginus, Poetic. Astron. lib. ii. xxii: cf. Varro, De Re Rustica, ii. cap. i. § 7: Proclus, In Tetrab. i. ix.

Gemini: Scholia ad Germanici Cæsaris Aratea Phænomena, 147: Bayer, p. 47. Tabula xlvii. Gemini.

themselves the inventors of the fable of the Egyptian Osiris and Isis, intended none but Osiris and Isis themselves, the twin principles of their own cosmogony, and the double object of their adoration; who must go together, under all circumstances, as husband and wife, as the masculine and the feminine principle alike concerned in universal production and reproduction.

It is here to be observed that at the epoch of the Sothiacal period, B. C. 1350, three years before this of the second Phoenix period, the Egyptians gave names to the months of their calendar also, for the first time; the same by which they have been known ever since. They had one Julian calendar among them, as old as the first Phoenix period, attached to Nov. 18; and another, in the calendar of Mazzaroth, of the same antiquity, attached to March 24: but it does not appear that they had given proper names to the months of their calendar before the institution of the Sothiacal period, and the rise of the fable of Osiris and Isis, and the institution of the Isia as the characteristic rite of their worship; at which time also they adopted a third Julian type, attached to the epoch of the Sothiacal period, July 22 and 21.

In this type the third month was Athyr, the month of the Isia; and thereby consecrated to Osiris and Isis in particular. Athyr too appears to have been one of the names of Isis herself among the Egyptians. The third month of the equable calendar also, their proper civil calendar itself, coincided at this time with this third month of the third Julian type in question. The third month in this type and the third in the civil calendar having been thus consecrated to Osiris and Isis; it was but consistent that the third month of the tropical calendar, the third sign of the sphere, should be consecrated to them also: and under this peculiar and significant name of the sign of "the Two\*."

\* Though the Greeks never imagined any but two masculine persons to be intended by the Gemini of the sphere, (unless it might be in the persons of the Dii Samothraces,) yet in the spheres of other countries in the east, besides Egypt, they are represented as a male and a female. Thus, in the Indian sphere the Gemini are "a damsel playing on a vina, and a



The algebraic symbol of this sign is remarkable. It seems to have consisted of two segments of a circle; the convex side of each of which was turned to the other, and both were united by two parallel lines at the top and at the bottom. Scaliger explains it<sup>h</sup> of “duo corpuscula, consortis brachiolis et crurculis.” It presents a striking resemblance however to that of the sign of Pisces — two semicircles inverted, and joined by a line passing through the centres of each, in which manner only they could be united at all. The same idea probably lies at the bottom of each of these symbols: and there is a passage of Proclus in *Timæum*, which may throw some light upon it. Αὐτὸ δὲ τὸ ἐκ τῆς προσβολῆς γενόμενον σχῆμα, τὸ χ, πολλὴν μὲν ἔχει καὶ πρὸς τὸ πᾶν οἰκειότητα καὶ πρὸς τὴν ψυχὴν· καὶ ὡς ὁ γε Πορφύριος ἱστορεῖ, παρὰ τοῖς Αἰγυπτίοις τοιοῦτος χαρακτήρ σύμβολον φέρει τῆς κοσμικῆς ψυχῆς, τῷ χ κύκλον περιβαλὼν<sup>i</sup>. On this principle two semicircles inverted might represent the universe; and composing a circle, and enclosing a χ, might denote the soul of the universe. The symbol of Gemini, that is, of Osiris and Isis, the two representatives of the universe as made up of an active and a passive, a masculine and a feminine, principle throughout, might very naturally be taken from two such mystical semicircles, or segments of a circle, as these; the line connecting them at the top and the bottom, (if it was always so represented,) implying the closeness of the relation existing between them, which was such as virtually to make one of both.

The true explanation of the symbol however, in this instance, in our opinion is that these two segments of a circle, turned opposite to each other, yet joined by the two parallel lines above and below, are the two ends of the cosmogonic egg, from one of which Osiris and from the other Isis must be supposed to have issued forth. For they were both the children of this egg, and they both came out of it at once.

youth wielding a mace.” (See Sir William Jones’ Works, iv. p. 70, on the Indian zodiac.)

In the sphere of Denderah, of which we may have to give an account hereafter, it is very easy to see that Gemini is represented by a male and a female figure, holding one another by the hand.

<sup>h</sup> Ad Manilium, 505.

<sup>i</sup> Γ (iii) 520 = 216 C.

Osiris was the son, Isis the daughter, of the egg. Nor is this explanation inconsistent with that which has just been given from Proclus and Porphyry of the meaning of the character  $\chi$  enclosed in a circle. This character too was probably the two ends of the egg, inverted and turned towards each other; both together being the symbol of Osiris and Isis in conjunction, and through them of the universe, or of the *soul* of the universe, (the *anima mundi*) also.

SECTION VI. — *On the name of the fourth sign, Κάρκινος, Καρκινῶν, Cancer, Karkinon; or the Crab.*

It might at first sight appear to be doubtful and open to question, whether the idea of the fourth sign of the zodiac was taken originally from the crab or from the beetle. The figure of the crab, and that of the beetle or scarabæus, were liable to be confounded: and we have already learnt<sup>j</sup> that the scarabæus itself among the Egyptians was the hieroglyphical symbol of the inferior hemisphere, into which the sun passes at the summer solstice, when it begins to turn back in the heavens from north to south: regarded in which relation and point of view it might be an appropriate symbol of the tropic of summer, and therefore of the fourth sign of the ecliptic itself.

Still there are not wanting conceivable reasons why the name of the Crab should have been imposed on this sign; and not that of the beetle. The Greeks called the ecliptic the  $\lambdaοξῇ \delta\delta\acute{o}\varsigma$ ; and applied to their Apollo, the type of the sun, as travelling perpetually in this  $\lambdaοξῇ \delta\delta\acute{o}\varsigma$ , the name of  $\lambdaοξίας$ . Loxias cognominatur, ut ait Ænopides,  $\delta\tau\iota \epsilon\kappa\piο\rho\acute{\epsilon}\upsilon\epsilon\tau\alpha\iota \tau\acute{o}\nu \lambdaοξ\acute{o}\nu \kappa\acute{\upsilon}\kappa\lambdaο\upsilon \alpha\pi\acute{o}\delta \delta\upsilon\sigma\mu\acute{o}\nu \epsilon\iota\varsigma \alpha\upsilon\alpha\tauο\lambda\acute{\alpha}\varsigma \kappa\iota\upsilon\acute{o}\upsilon\mu\epsilon\upsilon\omicron\varsigma$ <sup>k</sup>. The idea, implied in these terms, is that of a path or course which is never direct; is always more or less oblique, and under certain circumstances actually goes forward by seeming to go backwards. And this is the case with the apparent motion of the sun in the heavens at the two tropics; at each of which times, though actually going forward as much as before, it seems to go backward; it turns back from the north to the south, or from the south to the north.

Now there is a natural peculiarity about the motions of

<sup>j</sup> Supra, Diss. xiii. ch. ii. sect. iv. vol. ii. 487.

<sup>k</sup> Macrobius, Saturnalia, i. 17. 291.

the crab too, which, having been once observed, would appear to qualify it in a remarkable manner for symbolizing progression combined in this way with retrogression also: or apparently the same with retrogression<sup>1</sup>. The Greeks applied to the crab the epithet of *ὀπισθοβήμων*; and in Homer's battle of the frogs and mice, which is put an end to by the sudden appearance of an army of crabs, these are described among other epithets by that of *λοξοβάται* absolutely:

Ἥλθον δ' ἐξαίφνης νωτάκμονες, ἀγκυλοχῆλαι,  
λοξοβάται, στρεβλοί, ψαλιδόστομοι, ὀστρακόδερμοι<sup>m</sup>.

If the crab must be called *λοξοβάτης* and *ὀπισθοβήμων* from this peculiarity of its natural mode of walking backwards or sideways, the sun, who is always *λοξοβάτης κατ' ἐξοχήν*, and at the solstices *ὀπισθοβήμων* also, might be called the crab. This is probably the true explanation of the name. It might indeed on this principle have been given with just as much propriety to the tenth sign of the zodiac, as to the fourth. But it should be considered that, in this business of giving names to the signs, they were taken in their natural order, beginning with Aries; and taken in that order, the fourth sign (the summer solstitial sign) was the first to which such a name could properly be applicable, and therefore the first to which it could be actually applied.

The character of this sign is  $\mathfrak{S}$ : two figures each of which resembles the Arabic cypher, 6, but each of them is parallel to the other or to the horizon, not vertical or perpendicular to it. Scaliger explains it by the *chela cancelli*<sup>n</sup>. But in our opinion it was never intended of any part of the crab whatsoever. Each of these figures is a symbol of the act of turning, or of going back from one direction to another. And such is the natural phenomenon, which takes place every year at the summer solstice. The sun turns, and begins to proceed in the opposite direction. It may be said indeed that one such symbol must have sufficed to convey such a meaning as that; and therefore that another was superfluous. But it should be remembered that the apparent motion of the sun in the heavens is only a sensible indication of the real motion of the earth also: that there are two natural motions concerned in all these phenomena

<sup>1</sup> Macrobius, Saturnalia, i. 17. 297.

<sup>m</sup> v. 286.

<sup>n</sup> Ad Manilium, 505.

at once, the real motion of the earth and the apparent motion of the sun; and that these are always going on at the same time, but always contrary one to the other. This symbol of a twofold turning or trope, at the tropic of Cancer, we are persuaded was intended to convey this physical truth; viz. that when the sun was turning at that time in one direction, (from north to south,) the earth was turning at the same time in the other, (from south to north,) and yet each in a direction parallel to that of the other. With reason then might two symbols of turning be employed to convey this meaning; and two disposed in this particular manner, one the reverse of the other, yet one parallel to the other.

SECTION VII.—*On the name of the fifth sign, Λέων, Λεοντῶν, Leo, Leonton; or the Lion.*

Of this name and of this zodiac it does not appear that the Greeks ever made any thing but a lion: only that in their apprehension this lion was the lion of Nemea, or Cleonæ; one of the trophies of Hercules, translated to the heavens, and laid down on the sphere.

The idea of applying the name of the lion to one of the signs of the sphere, and that the sign next after midsummer or the solstitial one itself, we shall probably see hereafter, appears to have occurred very early to the Egyptians. It is explained by the characteristic of that sign in particular, in all climates of the world, and especially in Egypt; the intensity of the solar heat, which is greatest every where not at midsummer, but about a month after midsummer<sup>o</sup>; and especially in hot countries, like Egypt, Arabia, and Ethiopia. Among the wild beasts of the desert bordering on Egypt, the most remarkable for strength and fierceness was the lion: and the natural ferocity and fury of this animal, even if not still further stimulated and rendered more formidable by the heat of an Egyptian or an Arabian summer, were not calculated to be lessened and mitigated thereby. If an animal type must be selected for the midsummer sun of their climate, at that season of the year when it shone forth with a glare and a coruscation, which no eyes could encounter with

<sup>o</sup> Cf. Scholia ad Aratum, *Phænomena*, 149.



impunity, and with a concentration of heat and fervour, almost sufficient to turn into glass the dry sands of the desert itself; where was it to be found, except in the lion, the noblest and most generous of wild beasts indeed, but the most indomitable and most irresistible too? The lion was sacred to the Egyptian Pasht or Bubastis also; but she was only the Phrygian Cybele, naturalized among the Egyptians; to whom also the lion was sacred. A lion was kept at Leontopolis, sacred to the sun; but not, so far as any thing is known about it, before the lion in the heavens had been dedicated to the sun also.

Πρὸς τοῖσδε, says Clemens Alexandrinus<sup>o</sup>, ἀλκῆς μὲν καὶ ῥώμης σύμβολον αὐτοῖς ὁ λέων—Θυμὸν δὲ βουλόμενοι δηλῶσαι λέοντα ζωγραφοῦσι. κεφαλὴν γὰρ ἔχει μεγάλην τὸ ζῶον, καὶ τὰς μὲν κόρας πυρῶδεις τὸ δὲ πρόσωπον στρογγύλον, καὶ περὶ αὐτὸ ἀκτινοειδεῖς τρίχας κατὰ μίμησιν ἡλίου. ὅθεν καὶ ὑπὸ τὸν θρόνον τοῦ Ὡρου λέοντας ὑποτιθέασι, δείκνυντες τὸ πρὸς τὸν θεὸν τοῦ ζώου σύμβολον. ἥλιος δὲ ὁ Ὡρος ἀπὸ τοῦ τῶν ὥρων κρατεῖν<sup>p</sup>—Propterea Ægyptii animal (the lion) in zodiaco consecraverunt, ea cœli parte qua maxime annuo cursu sol valido effervet calore, Leonisque inibi signum domicilium solis adpellant<sup>q</sup>—Τὸν λέοντα τῷ ἡλίῳ συνοικειοῦσιν, ὅτι τῶν γαμψωνύχων τετραπόδων βλέποντα τίκει μόνος. κοιμᾶται δ' ἀκαρὲς χρόνον, καὶ ὑπολάμπει τὰ ὄμματα καθεύδοντας. κρῆναι δὲ κατὰ χασμάτων λεοντείων ἐξίσια κρουνούς, ὅτι Νεῖλος ἐπάγει νέον ὕδωρ ταῖς Αἰγυπτίων ἀρούραις ἡλίου τὸν Λέοντα παροδεύοντος<sup>r</sup>. The Scholiast on Homer<sup>s</sup>, commenting on his fable of the binding and imprisonment of Mars 13 months, and understanding it of the planet so called, as stationary eight months in the sign of the Lion, explains the χαλκῆος πίθος or κέραμος, which served as his prison, of this sign itself: Χαλκῆον δὲ πίθον λέγει τὸν Λέοντα· ἐν γὰρ τῷ ζωδίῳ τούτῳ γενόμενος ὁ ἥλιος ἔξοπτα ποιεῖ καὶ μεγάλα καύματα, ὥς φησι καὶ Ἀρατος<sup>t</sup>.

The symbol of this sign is generally explained of the tail of the lion itself. And though this may be the case, yet to

<sup>o</sup> Strom. v. vii. § 43. l. 32.

<sup>p</sup> Horapollon, i. 17.

<sup>q</sup> Saturnalia, i. 21. 314.

<sup>r</sup> Plutarch, Moralia. Symposiaca, iv. v. 2. Cf. De Iside et Osiride, xxxviii. Horapollon, i. 19. 20, 21; also Ælian. Hist.

An. v. 39: xii. 7. Scholia ad Aratum, Phænomena, 152.

<sup>s</sup> Ad Iliad. E. 385: Τλῆ μὲν Ἀρης.

<sup>t</sup> Ad Phæn. 149. Cf. Scholia ad Aratum, Phænomena, 148. 152. Horapollon, i. 1.

our apprehension it resembles also the hieroglyphical mode of representing the serpent Uræus, the Aspis Regia, or Basiliscus, the name applied to the principal star of the constellation of Leo itself, *Cor Leonis* or *Regulus*. The longitude of this star, A. D. 1801 or 1802, was about 4 signs,  $28^{\circ}$ ; but at the epoch of the third Phoenix period, B. C. 848 or 847, it was about three signs,  $21^{\circ}$  or  $22^{\circ}$ ; that is, very near the beginning of the sign of Leo itself.

SECTION VIII.—*On the name of the sixth sign, Παρθένος Παρθενὼν, Virgo, Parthenon; or the Virgin.*

Next to the name of Gemini, none appears to have been always more ambiguous than this of “the Virgin.” Erigone, Astræa, Ceres, Isis, Atargatis, Fortuna, and various other impersonations, have been supposed to be denoted by it<sup>u</sup>. We infer from this uncertainty itself that it was never known by any name even from the first, but that of “the Virgin.” What then was this name itself intended to express? In our opinion, a very ingenious idea; and very likely to occur to the Egyptians.

The Greeks, as we have seen<sup>w</sup>, derived the name of the Nile itself from the “new mud,” νέα ἰλὺς, the new mould, the fresh deposit of earth which was every year laid by it on the surface of the land of Egypt; and which served not only to add so much annually to its substance, but also as the receptacle of the future seeds of every kind, destined to produce the crops of the year; and as the only dressing, manuring, or preparation which the ground either received or required, in order to render it every year equally fertile, and equally competent for its natural use and purpose. This bed was renewed every year. It was composed every year of new materials, yet always the same in kind. It was in an eminent sense new and virgin soil. If it was to be typified at all, it could be by no idea so properly as that of ἡ Παρθένος: but in the sense of the Egyptian Isis, in the same state as at first; as youthful, as adolescent, and as virgin, as when she was

<sup>u</sup> Cf. Aratus, *Phænomena*, 96–136. Hyginus, *Fabb.* cxxx. cxxxiv. *Astron. Poet. lib.* ii. iv. xxv. Eratosthenes, *cap.* ix. Παρθένος. Tzetzes, *Chiliades*, iv. 157. 181. *Hist.* 128. Ovid, *Metam.* i. 149. Servius, ad *Georg.* i. 33. Se-

neca *Tragœdus*, *Thyestes*, 857 sqq. *Hercules* (Ætæus, 69. Octavia, 424. *Scholia ad Germanici Cæsaris Aratea Phænomena*, 95. Bayer, *Tabula* xxvii. p. 54.

<sup>w</sup> *Supra*, *Diss.* xii. ch. i. sect. vii. vol. ii. 393.

first fitted and prepared for her mystical consort the Nile, or for Osiris in the form of the Nile, at the beginning of things themselves.

It appears to us that this was the secret meaning of this name of "the Virgin" from the first. It must be allowed to be eminently Egyptian; and yet to be as beautiful and appropriate in itself, as natural in the ideas of the Egyptians. It is to be considered that it was given not to the fifth sign, in which the inundation attained to its height, and the waters were let out to cover the country, but to the sixth; in which they were still at their height, yet stagnant all over the country: in which sign consequently the alluvial deposit from the waters, of which we have been speaking, the annual source of all the fertility of the country, was going on in every part alike; fattening, and enriching, and fertilizing each.

Whether the spike or ear of corn also, which the figure of the Virgin, as it appears to have been always *de facto* represented on the sphere, holds in one hand, made a part of it from the first, may be a doubtful point. Yet we should be altogether of opinion that it did, at least from the time when the figure was actually delineated on the sign; that is, from the epoch of the third Phoenix period downwards. Such being the meaning of the Virgin herself, the type of the soil or surface of the land of Egypt annually renewed, and restored to a state of the same virgin purity as at first; nothing could be more natural than this appendage of such a type, a full grown ear of corn, the produce of that soil itself.

With regard to the symbol or character of the sign, Scaliger explains it of one of the wings of the Virgin<sup>x</sup>. A man must have better eyes than we possess to perceive any likeness to a wing in it at all. To our own apprehension it resembles nothing so much as the symbol of the next zodiac, that of Scorpio; and we are altogether of opinion it was always intended to be the same as that, with one circumstance of distinction between them, which made a great difference to the application and meaning of the symbol in each instance respectively. The symbol of Scorpio is the tail of Scorpio; and the sting along with the tail: the symbol of Virgo is the tail of the Scorpion too, but the tail

<sup>x</sup> Ad Manilium, 505.

without the sting. Every one must see that that must make a great difference. But as to the reason of the distinction, we shall understand it better when we come to treat of the sign of the Scorpion itself.

SECTION IX.—*On the name of the seventh and the eighth signs, Ζυγός, Ζυγών, Libra, Zygon; or the Scales: Σκορπίος, Σκορπιών, Αἱ Χῆλαι; Scorpio, the Scorpion; or the Claws.*

It has always been handed down in the history of the sphere, that in the oldest delineation and description thereof there was no such sign as the Scales, the Balance, or Libra; that the 30 degrees, assigned at present to Libra, were occupied originally by Scorpio: which consequently had 60 degrees assigned it at first, though every sign of the zodiac besides had only 30.

Est locus in geminos ubi brachia contrahit arcus  
Scorpios; et caudæ flexis utrinque lacertis  
Porrigit in spatium signorum membra duorum<sup>y</sup>.

Qua locus Erigonen inter Chelasque sequentis  
Panditur: ipse tibi jam brachia contrahit ardens  
Scorpius, et cœli justa plus parte relinquit<sup>z</sup>.

On which Servius: *Ægyptii duodecim esse asserunt signa: Chaldæi vero undecim. nam Scorpionum et Libram unum signum accipiunt. Chelæ enim Scorpii Libram faciunt... bene autem Augusto intra Virginem et Scorpionum, id est inter justitiam et virtutem, locum tribuit: nam Chelæ Scorpii brachia sunt quæ sexaginta partes in cœlo sunt. And again<sup>a</sup>: Secundum Chaldæos, qui Scorpionum dicunt spatium duorum signorum tenere. Hyginus, De Scorpio<sup>b</sup>: Hic propter magnitudinem membrorum in duo signa dividitur; quorum unius effigiem nostri Libram dixerunt.*

In supposing a difference in this respect between the Egyptian and the Chaldean sphere, at least at first, Servius is mistaken; though he is probably right in saying that the Chaldeans still made only xi signs, whereas the Egyptians made xii.

It appears however that the first 30 degrees, of the 60 assigned to the Scorpion in general, were appropriated to the

<sup>y</sup> Ovid, *Metam.* ii. 195.

<sup>z</sup> Virgil, *Georgica*, i. 33.

<sup>a</sup> *Ibid.* 35.

<sup>b</sup> *Poeticæ Astron.* i. xxvi. cf. iv. iii.  
Cf. also *Scholia ad Germanici Cæsaris Aratea Phænomena*, 79.



chelæ or claws; and the next 30 to the body of the Scorpion itself, including the tail: and this being the case, if the claws of such an animal figure as that of the Scorpion were to bear any proportion to the space assigned them on the sphere, they must be imagined and drawn very much exaggerated in point of size: and the claws of such a figure, so represented of unnatural size and shape, would soon be perceived to resemble a pair of scales, the two beams of which were inclined to the fulcrum at a certain angle of divergency, instead of being perpendicular to it. And when the claws of the Scorpion had thus come to assume the appearance of a pair of scales; nothing would be more probable than that, if it was thought proper at last to confine the Scorpion to the limits of one sign, the claws would be turned into a pair of scales, and the representation of *Libra* or  $\delta$  *Zυγός* would be substituted for that of the *Chelæ*. It would doubtless contribute materially to promote this change of the symbol, that the sign itself was one of the equinoctial signs, in which the night is equal to the day, and light and dark are evenly balanced, or in *equilibrio*.

*Libra die somnique pares ubi fecerit horas.*

It is manifest however, under such circumstances, that this choice of the figure of a pair of scales, for the autumnal and not for the vernal equinox, must have been purely accidental; and because the introduction of this emblem into the zodiac at all arose in the manner which we have just described, as the substitute for the claws of *Scorpio*. An original and primary idea of that kind would much more probably have attached such an emblem to the first of the equinoxes of which it would have held good, in the natural succession of day and night and in the natural succession of the sphere; that is, to the equinox of spring. As to the time when this change was actually made, we should be entirely of opinion it was the epoch of the third *Phœnix* period, and of the last revision of the sphere. It is certain however, that though the figure of the *Chelæ*, as the representative of the seventh sign, never got actual possession of the sphere; the name long continued in possession of it, even after it was figured and represented by *Libra*. The name of  $\chi\eta\lambda\alpha\iota$  for the seventh sign is of more frequent occurrence in *Ptolemy*

and in the astronomical writers of antiquity than that of *Zwýós*: and Martianus Capella still speaks of Scorpio as possessed of 60 degrees or two signs even in his time<sup>c</sup>.

But the question remains, why 60 degrees were originally assigned to Scorpio? The answer to this question is calculated greatly to authenticate and to confirm our position respecting the time when we suppose this business of first giving names to the signs to have been going on. The fable of Osiris and Isis and Typhon had just been invented; and the Isia had just been instituted. In that fable Typhon was the principle of vegetable corruption and destruction, Osiris that of vegetable reproduction and renovation. This principle of destruction began to act as soon as the seed was committed to the ground; and continued to act as long as the seed also continued to be committed to the ground: and we have shewn (from the evidence too of the fable of Osiris and Isis and of the circumstances of the Isia themselves) that seed-time in Egypt began at the autumnal equinox, with the ingress of the sun into Libra, and lasted at least 60 days afterwards, to the ingress of the sun into Sagittarius. And all this time Typhon, the common principle of vegetable corruption, decay, dissolution, and destruction, preparatory even to vegetable reproduction and life itself, would be active and full of operation, agreeably to the instincts of his nature; that is, for two signs, or 60 days at least.

Now the Scorpion being a venomous reptile, and well known in Egypt for the poison contained in its sting; being a troublesome creature too, and a dangerous one, because it abounded in that country; it was a very appropriate type of their Typhon also: and they might naturally think of pitching upon it to be the emblem of these 60 degrees in the heavens, because of what was going on at the same time in the world below, in the incessant exertion of the power of Typhon to kill and destroy the seed, which was all this time in the act of being committed to the ground. It is observable that the claws or forepart of this reptile only were assigned to the first 30 of these 60 degrees; that is, to the first 30 days of this period of seed time; the tail or the hinder parts to the last. The power of the animal to seize and hold fast

resided in the claws ; that of stinging and poisoning or killing resided only in the tail. This power of the claws might be said to be asserted by Typhon, as soon as the seed began to be committed to the soil ; that is, at the autumnal equinox itself : but the power of the tail, the power of the sting, on a large scale and most effectually, only then when the seed had been most largely committed to the ground, and for the longest time ; that is, for the last 30 days of the 60. The month of November in Egypt is that in which the new-sown vegetable crops appear generally above ground, in all the first beauty and luxuriance of infant or incipient vegetation. The month of October consequently is that in which the process of corruption and dissolution, affecting the substance of the seed previously, must have gone on most generally ; that is, it is the month of the power of the tail, and of the sting in the tail\*, of the Scorpion.

With regard to the characters of these different signs, that of Libra is evidently a pair of scales, the fulcrum and beam at least of a pair of scales ; wanting only the two arms or balances to make it complete. This character therefore for the 7th sign must have been devised when the emblem or name of Libra was substituted for that of the claws. At least it cannot be older than that time. The character of the sign of Scorio is evidently the tail of the scorpion ; as must be inferred from the barb at the end of it, in which the poison of the tail resided. We have already observed that the character of Virgo is the same as this of Scorio—but without this addition of the barb or poison at the end. The reason of the identity of these two characters in other respects, and yet their distinction in this, the most important of all, appears to us to have been, That the soil which re-

\* It appears from Plutarch, (*De Iside et Osiride*, lxxv.) that the crocodile was not only sacred to Typhon, but a type of 60 also, and especially of 60 degrees, or a sixth part of the entire circumference of the heavens. We have explained why it might have been consecrated to Typhon ; viz. because of its natural ferocity and destructiveness. It is most probable that it came to be considered a type of the number 60, and in particular of 60 degrees, not because of any property of its own to connect it *a priori* with that number, but because of its appropriation to Typhon ; and because of the appropriation of a double sign in the sphere, or of 60 degrees in the heavens, to Typhon himself.

ceived the seed must be deposited in Virgo, and so far Virgo itself might be said to prepare the way for Scorpio. Yet though the seed, afterwards committed to this soil deposited in Virgo, must be dissolved and die; still the principle of its destruction was not in the soil which received it, but in something *ab extra* derived from Typhon—the type of which was the sting of the scorpion. This sign therefore might share in the character of that of Scorpio; but as harmless itself, and as innocent of the effect destined to ensue in Scorpio, its particular character must be the tail of the Scorpion *without the sting*.

SECTION X. — *On the name of the ninth sign, Τοξότης, Τοξὸν, Sagittarius, Toxon, or the Archer.*

The ζώδιον, or animal figure, which appears to have always represented the ninth sign of the zodiac, is a compound one; the hinder or lower part of which is that of an horse, the fore or the upper is that of a man: and yet not simply an horse and a man in one, which would have answered to the idea and representation of a centaur of antiquity, but the upper half of a man, discharging an arrow from the back of an horse, like one of the ἵπποτοξόται of old.

Such an object as this, it is manifest, never could have had a real existence. It must have been purely imaginary. The centaur of the Greeks never had a real existence too; and though this figure is not exactly that of a Grecian centaur, it is very possible that the first idea of the centaur of the Greeks might have been taken from this ἵπποτοξότης of the Egyptian sphere. The Grecian astronomers looked on this horse-man of the sphere as their Chiron: and some of the learned in modern times have imagined that the Grecian Chiron was the first author of the sphere itself; having been misled by an ambiguous passage from an anonymous author, to whom Clemens Alexandrinus attributes a poem entitled Τιτανομαχία: Ὁ δὲ Βηρύτιος Ἑρμιππος Χείρωνα τὸν Κένταυρον σοφὸν καλεῖ, ἐφ' οὗ καὶ ὁ τὴν Τιτανομαχίαν γράψας φησὶν ὡς πρῶτος οὗτος

Εἷς τε δικαιοσύνην θνητῶν γένος ἤγαγε δείξας  
ὄρκους καὶ θυσίας ἱλαρὰς καὶ σχήματ' Ὀλύμπου<sup>d</sup>.

<sup>d</sup> Strom. i. xv. § 73. p. 52. l. 27.



which would be just as intelligible, and probably much more true, if Chiron merely made known to others among his countrymen, the Greeks, the σχήματ' Ὀλύμπου which he himself had learnt from the Egyptians.

The centaur of the Grecian sphere was most probably meant for the centaur Chiron, supposed to have been the wisest and best of the centaurs themselves: and it is a curious coincidence that even the Chiron of Grecian mythology and the first revision of the sphere, when the signs of the zodiac, and this of Sagittarius among the rest, received their names, were nearly of the same age. Chiron was still alive at the time of the Argonautic expedition; and that was about 100 years later than the second Phœnix period. Moreover Chiron met with his death at last, according to the Grecian fable, from the accidental discharge of an arrow; which might be that of this archer of the sphere, though the Greeks call it one of the arrows of Hercules: and an arrow itself was sometime or other laid down on the sphere, the asterism of Ὀϊστῆς or Sagitta; and though not in the zodiac, yet at no great distance from it.

We may conclude then with the highest degree of probability, that, from the time when such figures came to be delineated on the sphere at all, there must always have been a figure upon it, which corresponded to this Hellenic conception of the centaur of fable; and if so, in this part of the sphere, at which we have now arrived, and as the representative of the ninth sign. The question is then, What could have induced the Egyptians to fix on a figure like this, half a man half an horse, and moreover in the act of discharging an arrow, to represent this particular sign? Hitherto we have met with nothing in the zodiac but objects which might have a real existence: but this is altogether an impossible, and altogether an imaginary, object; and yet it is performing an act, which in every quarter of the globe and at all times has been one of the most common and familiar, though characteristic of an human agent only; i. e. discharging an arrow from a bow.

The explanation of this phenomenon too is something exceedingly curious and interesting, and calculated to give us a lively idea both of the ingenuity of the Egyptians, and of

their peculiar fitness for the representation of abstract ideas by sensible images, and also of their knowledge of physical astronomy.

The length of the four quarters of the natural year is not the same, nor ever has been, nor indeed possibly can be. Under certain circumstances some two of them may be of the same length at once; but all four cannot be so at the same time. At present the shortest quarter is the winter quarter, and the longest is the summer quarter: at first, or soon afterwards, and for a long time subsequently, the longest was the spring quarter, and the shortest was the autumnal. The first of the tables which we have compiled, among our other supplementary tables<sup>e</sup>, will shew at one glance all the variations of this kind which have happened since the beginning of the present system of things. It appears from one of them that, from the beginning of Period ii A. M. 113 B. C. 3892 down to the beginning of Period xliii A. M. 5265 A. D. 1261, the first quarter was the longest, and the third was the shortest. At the beginning of Period xviii, only 27 years later than the epoch of the Phoenix cycles, A. M. 2158 B. C. 1847, this quarter was *six* days shorter than the first, 2 days 14 hours shorter than the second, and 3 days 9 hours shorter than the fourth. At the epoch of the xxiid Period, only 25 years before the second Phoenix period, it was still six days minus *one* hour and a little more shorter than the first, three days minus one hour and a little more shorter than the second, and three days minus one hour and a little more shorter than the fourth.

The lengths of the quarters in the natural year not being the same, the time taken up by the sun in describing the signs of each (the months of the celestial calendar corresponding to those signs) cannot be the same. It is well known to astronomers that these distinctions depend on the position of the two extremities of the axis major of the solar orbit, called the apogee and the perigee, in and among the signs: that the motion of the sun is slowest before and after the point of the apogee, and quickest before and after the point of the perigee: and therefore that the 30 degrees of the ecliptic before and after the apogee are described in the

<sup>e</sup> See the Introduction.

longest time of all, and the 30 before and after the perigee in the shortest time of all.

Now, from the table of this kind too which we have compiled<sup>f</sup>, it is easy to calculate that the mean longitude of the solar apogee at the mean vernal equinox B. C. 1347 was  $45^{\circ} 33' 35'' \cdot 391$ , and that of the perigee was  $225^{\circ} 33' 35'' \cdot 391$ ; or as it may be assumed, without any material error, that of the former was  $45^{\circ} 30'$ , and that of the latter  $225^{\circ} 30'$ .

It follows that just at this time the apogee was falling almost exactly in the middle of the first quarter, and the perigee almost exactly in the middle of the third: the former in the 16th degree of the tropical Taurus, the 27th degree of the Krion of Mazzaroth; the latter in the 16th degree of the tropical Scorpion, the 27th degree of the Zygon of Mazzaroth: and therefore that the longest months in the natural year at this time must be found in the middle of the spring quarter, and the shortest in the middle of the autumnal.

Now this position of the axis major of the solar orbit in itself was something remarkable; the most remarkable which had yet occurred since A. M. 1 B. C. 4004, when it coincided with the line of the equinoxes; and the most remarkable which ever occurred again, until A. D. 1248–1251, when it coincided with the line of the solstices. We may justly suppose, even from the coincidence itself, (falling out as it did synchronously with this second delineation of the sphere,) that it was neither unknown to nor unregarded by the Egyptians; and that they could not but collect from it, that the shortest natural month in the year at this time must be that which extended from the middle of the tropical Scorpion to the

<sup>f</sup> B. C. 4004—B. C. 1347 = 2657 years.

#### Supplementary Tables.

Mean motion of the solar apogee.

y.	°	'	''
2000	34	17	39·082
600	10	17	17·725
50		51	26·477
7		7	12·107
<hr/>			
2657	45	33	35·391
C C 2			

middle of the tropical Sagittarius; from the  $27^{\circ}$  of Zygon to the  $27^{\circ}$  of Scorpio in the sphere of Mazzaroth: that is the month for which they were to find a representative on the sphere next in order to this of Scorpion.

Now there is no idea of velocity, taken from any thing with which men themselves are familiarly acquainted, competent to represent and typify the actual velocity of the heavenly bodies, the sun, the moon, and the planets, but their own thoughts; and the rapidity with which those also are capable of passing from one point of space to another, howsoever remote from it. But though a thought of the mind is capable of keeping pace with and even anticipating the almost incalculable velocity with which the sun, and the moon, and the planets are perpetually moving in space; a thought of the mind cannot be typified, a thought cannot be rendered sensible, or be represented by an object of sense.

We cannot suppose that the Egyptians were ignorant of the physical fact that there is a real motion of some kind which produces the apparent motion of the sun; and that this is the motion of the earth; its motion round its own axis, as regards the diurnal motion of the sun from east to west, and its motion of translation in space, as regards the annual motion of the sun from south to north, and from north to south. The character of the sign of Cancer, in our opinion, is competent to prove that; for we have seen that, if it was really invented by them, it must have been purposely intended to represent this double motion both of the earth and of the sun at once, always contrary yet always parallel one to the other. If therefore they had to devise a representation for the ninth sign of the sphere, in which this motion of translation in space was the swiftest of any in the year, the question is, in what manner must that be done? It could not be done by a thought of the mind: and what was there else with which men were acquainted, yet capable of being represented to the senses, which could give an adequate idea of the speed of the sun at any time, and in particular at this time, and in passing through this sign?

It is a curious coincidence that Homer, proposing to express this particular idea of instantaneous transition from



one point of space to another, could think of nothing so proper for it as a thought of the human mind \*, or an arrow :

ὥσπερ πτερὸν ἢ νόημα :

and that the Egyptians, when they too were proposing to symbolize this natural characteristic of the ninth sign in the most appropriate manner, appear to have thought first of all of doing it by means of an arrow : for there is reason to believe, (as we have collected ourselves from the zodiac of Denderah,) that their first intention was to have represented it by means of a female figure discharging an arrow from a bow. It appears however that even an arrow, discharged from a bow, but by a figure standing still, did not seem to them to come up to the intensity of the idea of the velocity which they had to express ; nor to be an adequate image and likeness of that instantaneity of translation in space, which characterised the motions of the earth and the sun in this sign. They changed this female figure therefore into a warrior, and a warrior equipped with a bow, and this bow bent, and with an arrow applied to the string and levelled at some mark, and impatient as it were to fly forth towards it, with a speed which no eye could follow. And to crown all, and to give the utmost possible intensity to that idea of velocity which they were thus proposing to convey, by combining the swiftest of animal motions with the most rapid of mechanical or artificial, they mounted this archer, with his bow so bent and with his arrow so aimed at the mark, on horse-back ; and they represented this horse at the top of his speed, or galloping as fast as he could.

Such we believe to have been the natural course of thought and of the association of ideas, which led to the adoption of this particular symbol of the ἵπποτοξότης for the ninth sign

\* It is observable that this same idea occurs three or four times in the Rig-Veda of the Hindus, recently translated into English by Professor Wilson, and published under the auspices of the East India Company. See p. 317, first ashtáka, eighth adhyáya, súkta ii. (cxvii.) ver. 15, in an apostrophe to the Aswins, " You bore him . . . swift as thought, to safety : " p. 319, súkta iii. (cxviii.) ver. 1, of the car of these Aswins, " For it is as quick as the mind of man : " p. 321, súkta iv. (cxix.) ver. 1, of the same car, " Your wonderful car, swift as thought : " p. 189, fifth adhyáya, súkta vii. (lxxi.) ver. 9, " The sun who traverses alone the path of heaven with the speed of thought. "

of the tropical sphere; an arrow discharged by an archer, from the back of an horse galloping at the utmost of his speed; the swiftest of the motions of translation in space which human art, up to that period in the history of the world, had yet been able to create for itself, rendered still swifter, if possible, by a combination with the fleetest of natural (animal and sensible) motions, the speed of the Arabian courser, bounding across the sands of his native desert. Our readers will judge of the probability of this explanation for themselves f.

It follows however from this account of the end and design of the symbol, that the actual type of this sign at first was most probably an *ἵπποτοξότης*, not a centaur. The centaur of antiquity, a creature half man half horse, seems to have been altogether a Grecian conception. The question is, how it might come to get into the sphere instead of the *ἵπποτοξότης*, and when? We are entirely of opinion that it was purposely substituted for it by the Egyptians themselves; but not until they had become familiarly acquainted also with the Hellenic idea of the centaur; that is, not before the epoch of the last revision of the sphere. We shall see by and by that they borrowed from the Greeks also, and at the same time, the symbol which still appears on the zodiac, as the representative of the eleventh sign. In the Grecian conception of the centaur, the man is part of the horse, and the horse is part of the man: in the *hippotoxotes* each is distinct from the other. It might occur to the Egyptians to reflect that the motion of the rider on this horse of the sphere could never be completely identified with that of his horse, unless he were represented as part of the horse, and his horse as part of him. The change in the expression of the idea then

f Cf. Bailly, *Astronomie Ancienne*. livre vi. § xvi. p. 173: Cleomedes, *De Sublimibus*, ii. cap. i. 90-93. With these observations in Cleomedes, we may compare the following statement from Achilles Tatius, *Isagoge*, § 18, *Uranologium*, 137. C. D: Χαλδαῖοι δὲ περιεργότατοι γενόμενοι ἐτόλμησαν τοῦ ἡλίου τὸν δρόμον καὶ τὰς ὥρας διορίσειν. τὴν γὰρ ἐν ταῖς ἡμερησίαις ὥραν αὐτοῦ καθ' ἣν ἴσως διέρχεται τὸν πᾶν εἰς ἅ' ὅρους μερίζουσιν· ὥστε τὸ ἅ' μέρος τῆς ὥρας τῆς ἐν τῇ ἡμερῇ ἡμέραν ὅρον

λέγεσθαι τοῦ δρόμου τοῦ ἡλίου. λέγουσι δὲ πάλιν ἀνδρὸς πορεῖαν μὴτε τρέχοντος μὴτε ἡρέμα βαδίζοντος μὴτε γέροντος μὴτε παιδὸς τὴν πορεῖαν εἶναι τοῦ ἡλίου, καὶ ἅ' σταδίων καθάρων εἶναι.

Thirty stades in one hour of mean (equinoctial) solar time =  $24 \times 30$ , or 720 in a day; or 72 miles of our measure. And  $365 \times 72 = 26280$  miles: which, on this principle, must have been assumed as the circumference of the earth.

at last would be resolvable into the same principle as the original conception of the idea itself.

If however such was really the original meaning of this archer of the sphere, it proves very plainly that this process of naming the signs must have been going on some time when Sagittarius was notoriously the shortest sign; as it must have been at the epoch of the second Phœnix period. The motion of the apsides indeed is very slow; and therefore the changes which take place in the comparative lengths of the different months of the celestial calendar are proportionably slow too. Sagittarius was still reckoned the shortest sign in the time of Cleomedes<sup>b</sup>, 1400 years after this time at least. Yet the position of the apsides too, at this particular time, as we have also discovered, was remarkable; and calculated to make the ingress of the second Phœnix period one of the fittest epochs which could have been selected for such a business as this of giving names to the signs, taken from the most natural and appropriate characteristics of each.

The algebraic symbol of this sign is quite in character with this explanation of the representation of it on the sphere. Scaliger says it is *Sagitta arcui applicata*<sup>i</sup>: but in reality it is an arrow without a bow; therefore an arrow which must be supposed to have been already discharged. But it has a double barb: that is, it is a double arrow: it is two arrows in one. Consequently it is an arrow of twice the speed of one; an arrow flying twice as fast as an arrow discharged from the strongest bow, and by the arm of the strongest archer, would nevertheless fly of itself. We may easily conceive how deep and intense must have been that idea of motion, which the Egyptians desired to express, when they thus varied the sensible image and representation of it in such different ways; yet each so significant in itself.

<sup>b</sup> De Sublimibus, ii. v. 137. 8: Ἐτι γὰρ ἐν Διδύμοις ὄντα καταλήψεται τὸν ἥλιον (ἢ σελήνην) δυοῖ γε καὶ τριάκοντα ἡμέραις τοῦτο τὸ ζώδιον διερχόμενον. εἰ δὲ περὶ τὰς τοῦ Τοξότου ἀρχὰς γένοιτα

σύνοδος οὐ καταλήψεται ἔτι ἐν τούτῳ τῷ ζώδιῳ τὸν ἥλιον ἢ σελήνην, ἐν εἰκοσι καὶ ὀκτὼ ἡμέραις τοῦτο τὸ ζώδιον διύοντος τοῦ ἡλίου.

<sup>i</sup> Ad Manilium, 505.

SECTION XI.—*On the name of the Tenth Sign, Αἰγόκερως, Αἰγών, Capricornus, Ægon; or the Goat-horn.*

Could any dependence be placed on the statements which occur in the monumental history of the Egyptian dynasties; we must suppose that the deification of the Goat of Mendes was as old as that of the Apis of Memphis, and that of the Mneuis of Heliopolis; and therefore that the goat was already an object of worship in Egypt before names were given to the signs of the sphere, and before the epoch of the Sothiacal period. In that case, it must have been easy to account for the appropriation of the animal symbol of the goat to the tenth sign of the sphere, the winter solstice sign, corresponding to the sign of Cancer at the opposite season. But for our own part we attach no credit to any statement which rests on the sole and uncorroborated testimony of the monuments: and though we do not disbelieve in the existence of the Goat of Mendes<sup>k</sup>, or in its connection with the sphere, we do not consider it so old, by many centuries, as the Mneuis of Heliopolis; nor so old even as the Apis of Memphis; though it may be as old as the Ram of Thebes or Libya.

The disposition to walk at the head of the flock is characteristic of the goat, as well as of the ram. Hence the allusion in Jeremiah<sup>1</sup>; “As the he-goats before the flocks.” It may be taken for granted too that the goat was trained in the east to follow its keeper as well as the sheep: though the testimonies to that fact in the case of the former are not so numerous or so clear as those to the same fact in the case of the latter. The goat then might be selected as the most appropriate type of the first of a certain division of the signs, on the same principle upon which the emblem of the Ram was chosen to represent the first in the whole succession;

<sup>k</sup> Plutarch, De Iside lxxiii: Some considered the goat of Mendes itself another representation of the Apis: Αὐτὸς δ' Ἀπὶς οὕτω δὴ γὰρ τὸν ἐν Μένδῃ τράγον καλοῦσι. According to Herodotus, ii. 46. Mendes was the Egyptian for goat: also the name of the Grecian Pan among the Egyptians: Καλέεται δὲ ὁ τε τράγος καὶ ὁ Πᾶν Αἰγυπτιστὶ Μένδης. Cf. the Etymologi-

cum M. Μενδήσιος... Μένδης δὲ λέγεται παρ' Αἰγυπτίοις ὁ τράγος. Chemmis is generally considered the Egyptian expression of the Greek Pan. Of the worship of the goat in Egypt, see Philo Judæus, ii. 193. 23—194. 28. De Decem Oraculis: Theodoret, Græcorum Aff. Cur. iii. 142. § 85.

<sup>1</sup> l. 8.



viz. that division which belongs to the superior, in contradistinction to the inferior, hemisphere, and at the beginning of the first of which the sun begins to pass from the south to the north of the solar orbit. And as it could not fail to be observed that, from the time of its entering into this division of the ecliptic, it rose every day more and more to the north, and mounted every day higher and higher, and described a larger and more ample vertical circle in the heavens; this natural phenomenon too it might be supposed would be most fitly represented by another of the natural instincts of the goat, which makes it delight in climbing among rocks and hills, and browsing on the shrubs and herbage which grow there, in preference to the lower grounds<sup>m</sup>. In any case, it is much more probable that the goat, a domesticated animal of acknowledged utility in the east, and distinguished by such natural characteristics as these, would be selected to represent one of the signs of the zodiac, than that the oryx would be so; an animal known indeed to the ancient Egyptians, but naturally wild and unreclaimable, and found only amidst the solitudes and rocks of the desert.

It does not however appear, (as far as we have been able to discover,) that the zodiacal representative of this sign in particular ever was the goat, and nothing but the goat. In the first place, we do not know that the name of this sign was ever any thing but *Αἰγόκερως* in Greek, *Capricornus* in Latin: and that does not mean the goat, but the "goat-horn," the "horn of the goat:" the inference from which distinction must be that, if any part of the figure of a goat was known to be asterised in this zodiac, it must have been only the head at the utmost. In the next place, the figure which actually appears on the sphere, under the name of *Αἰγόκερως* or *Capricornus*, is agreeable to this conclusion: viz. one the forepart of which represents the corresponding part of a goat, but the hinder part does not. The goat of the sphere, like the *Hippotoxotes* last considered, is a compound figure; and its different parts are taken from different objects in external nature. And this is one among other reasons, and a very convincing reason, that the *Ægokeros* of the Egyptian sphere could not have been the same con-

<sup>m</sup> Cf. Macrobius, *Saturnalia*, i. 17. p. 297.

ception as the Pan or Ægipan of Hellenic mythology; though the first idea of the Grecian Pan might very possibly have been derived from the Ægokeros of the sphere. The Hellenic Pan has as much of the figure of a man as of that of a goat. He has the head and shoulders and body of a man, (at least of a satyr of antiquity,) standing on the legs and feet of a goat. But the Ægokeros of the sphere has nothing human in its composition at all. It has the head and front of the goat; but its hinder part is something which makes part neither of the human figure nor yet of that of the goat.

According to the usual mode of representing the Capricorn of the sphere; it is composed of the head, and horns, and fore-quarters of the goat, and of a sea-animal or sea-monster behind, which would correspond to the idea of *Pristis* in Latin, or of what must be supposed to have constituted the hinder part of a Triton of antiquity: so that the representative of the tenth sign, on this principle, must have been an amphibious conception; belonging to the animal kingdom of the sea, as much as to that of the dry land. In our opinion however, this representation of it, by means of a figure composed of a goat and of a Triton, is either a corruption or a change of the original and genuine mode of delineating it. And though the figure which was laid down on the sphere in the first instance was a compound one too, and the front part of this compound representation was actually taken from the *πρωτομή* of the goat; the hinder part, as we shall see reason hereafter to conclude, was borrowed from the scorpion; and what has since been converted into the body and tail of a sea-monster, in this particular zodiac was originally the tail of a scorpion.

In explanation of these facts we may observe in brief, first, that as this was the first of the six signs of the upper hemisphere, and the first in which the sun begins to mount sensibly higher and higher in the sky; the goat was pitched upon to march at the head of these six signs, for the same reason as the ram to march at the head of the sphere itself: and also to symbolize the natural phenomenon perceptible at this season of the year, by its own natural instincts and characteristics. Secondly, that for the climate of Egypt neither the month which corresponded to Sagittarius, nor

that which answered to Capricorn, in the heavens could be altogether excluded from the number of *seed-months* ; from the number at least of those months during which vegetation of every kind was continuing to develope itself, and was still in its infant or nascent state, not yet in its adolescent ; much less in its matured and perfect state. The Harpocrates of Egyptian mythology, the premature birth of their Isis, a seven months' child, and brought forth at the winter solstice, infirm and tottering in its lower members<sup>o</sup> above the natural weakness of infancy itself ; was not so much a type of the infant sun, i. e. of the sun of the tropic of Capricorn, when its light and its heat are most feeble, as of the first fruits of vegetable life, such as sprang up and came into being at the winter solstice.

Seed-time in Egypt therefore might begin as early as the autumnal equinox, yet it must continue, for that climate, as late as the winter solstice ; and the first symptoms of vegetable life from such seeds would make their appearance at a stated distance of time from the latest of these terms as much as from the earliest. Now, whensoever the seed was sown, it must go through the same natural process of corruption and decay, in order to come to life again at last in the shape of the plant : and wheresoever and whensoever there was vegetable corruption and dissolution, even as preparatory to vegetable reproduction and renovation, *there* and *then* there was the power of Typhon, still exerted and still effectual in the same way. For this reason a part of his proper symbol in his proper capacity, the scorpion, and that part the most expressive of all, the tail of the scorpion, was attached to the emblem of the solstice in this instance ; and both together were constituted the representative of the tenth sign ; the fore part taken from the goat, in reference to the sun, and to the place of the sign in the order of the sphere ; the hinder part, borrowed from the tail of the scorpion, in reference to what was going on, throughout the country at large, in this sign, as well as in every other since the autumnal equinox.

The algebraic symbol of this sign at first sight appears more complicated than any which we have yet considered.

<sup>o</sup> Plutarch, De Iside et Osiride, xix. lxxv.

Scaliger explains it by *cauda Capricorni convoluta*<sup>v</sup>: as if it were merely the tail twisted or rolled about itself. But in reality this is one more of those ingenious devices of which we have already seen so many, in connection with other parts of the sphere. It is easy to perceive that the profile of the head and horns of the goat enters into this symbol, as much as that of the head of the ram into the symbol of Aries, and that of the head of the bull into the symbol of Taurus. As to the other part compounded with it, in our opinion it is nothing more or less than the symbol of turning, the most appropriate emblem of the tropic; (such as we have already seen employed to characterise the tropic of Cancer;) hung on one of the horns of the goat. The horn selected for this purpose consequently was most probably the south horn, because the sun at the tropic of Capricorn turns back from the south to the north, and not from the north to the south.

SECTION XII.—*On the name of the eleventh sign, 'Υδροχόος: 'Υδρῶν, Aquarius, Hydron; the Water-pourer, or Water-man.*

The proper zodiacal representative of the eleventh sign is another of those concerning which the greatest uncertainty appears to have always prevailed. In the figured representation of the sphere from time immemorial it has always been exhibited as an human subject, holding an urn or pitcher of some kind, (*amphora, urceus, situla,*) from which it is in the act of pouring out water in a copious stream; so that the name of the figure, taken from the act just represented, has never been any thing but that of the Water-pourer or Water-man.

But with regard to the further question, who was the person supposed to be exhibited in the performance of such an act as this? there *must* always have been great uncertainty. The Greeks made various characters out of it; Cecrops, Deucalion, Ganymede, Aristæus<sup>q</sup>: the second of which number indeed might be traditionally connected with the effusion of water on a large scale, through the flood known by his name, the flood of Deucalion; and the third too, as being

<sup>p</sup> Ad Manilium, p. 505.

<sup>q</sup> Cf. Hyginus, *Poeticorum Astron.* i.

xxix: Scholia ad Germanici Cæs. *Ara-tea Phænomena*, 282.



the cupbearer of the gods according to Hellenic mythology, might possibly be conceived to have something to do with an act of effusion or pouring out. But as to the other two, to whom the possession of this sign was thus appropriated also, Cecrops and Aristæus, we know not through what real or imaginary connection between either of these and the act itself represented on the sphere, that could have been awarded to them; though reasons might probably be conceived, competent to connect one of them with this sign, or with this season of the natural year, if not with this act in particular; Cecrops,  $\delta \delta \iota \phi \upsilon \eta \varsigma$ , as he was called.

The best informed of the Greeks and Romans however considered the true representative of this sign an *ignota persona*; though they assumed that his proper office on the sphere was this of pouring out water. There is a beautiful description of the twelve signs in the Thyestes of Seneca Tragædus, which we will take this opportunity of quoting: and it will be seen from it that, while every other has its classical name and its characteristic classical associations specified, the owner of the urn, the representative of the eleventh sign, is left without a name<sup>r</sup>.

Hic, qui sacris pervius astris  
Secat obliquo tramite zonas  
Flectens longos signifer annos  
Lapsa videbit sidera labens.

Hic, qui nondum vere benigno  
Reddit zephyro vela tepenti  
Aries præceps ibit in undas  
Per quas pavidam vexerat Hellen.

Hic, qui nitido Taurus cornu  
Præfert Hyadas, secum Geminos  
Trahet et curvi brachia Cancræ.

Leo flammiferis æstibus ardens  
Iterum a cœlo cadet Herculeus.  
Cadet in terras Virgo relictas,  
Justæque cadent pondera Libræ,  
Secumque trahent Scorpion acrem.

Et qui nervo tenet Æmonio  
Pennata senex spicula Chiron,  
Rupto perdet spicula nervo.

<sup>r</sup> Thyestes, 844.

Pigram referens hyemem gelidus  
Cadet Ægoceros, frangetque tuam  
Quisquis es urnam. tecum et cedent  
Ultima cœli sidera Pisces.

Now that the figure, so represented and so denominated, has no right to the place on the sphere which it actually occupies, or that it was not introduced into the sphere by the Egyptians themselves, is more than we would venture to say; and yet notwithstanding we are bound to declare that we do not consider this figure of the urn-bearer, and this act of pouring out water, to be the idea which they either first conceived or first delineated as the representative of the eleventh sign; nor the actual zodiac which first appeared in this part of the zodiac to have been that. This may look like a paradox, yet we have reasons for what we say; which we shall proceed to lay before our readers.

It has pleased the providence of God (which always intended to bring those truths, which we have been hitherto investigating, in due time to light) to preserve for that purpose the data which were most necessary for it; in the midst too of a thousand dangers and accidents which might at any time have caused their destruction. And among the monuments of antiquity, destined to render this service to the cause of truth, and transmitted to our own times in a great measure safe and sound, are the two well known sculptures of Denderah, the zodiac of the portico and the zodiac of the ceiling, of each of which we hope hereafter to give a more particular and circumstantial account; but with respect to which at present we think it sufficient to observe that there is a sphere, or a zodiac properly so called, (as their name itself implies,) represented on each, which embodies and exhibits in an authentic and trustworthy form the last delineation of the kind which was made by the Egyptians themselves.

This zodiac on comparison is found to be the same in each; and if we trace the signs in their order in both, beginning with Aries, we find them proceed in an uniform manner in each, and the figured representations of the signs, the zodiac properly so called, in each instance, to be the same in each, (and agreeable too to the account which we ourselves

have already given of them,) from Aries the first sign to Capricorn the tenth sign ; and from Capricorn the tenth to Pisces the twelfth.

But with respect to the eleventh sign, the sign between Capricorn and Pisces in each ; we meet with the same representation in this part of the sphere, between Capricorn and Pisces, in each of these zodiacs ; which must consequently have been the proper representative of the eleventh sign in each. Had this then always been the figure of Aquarius, we must have met with the figure of Aquarius here in each ; i. e. the figure which we do meet with here in each must have been that of Aquarius. Now we do meet with a figure at this point of time in each, and a figure the same in each, and an human figure too ; but not an human figure carrying an urn, or emptying water from a vessel of any kind. The figure which is actually found in each of these zodiacs, next after Capricorn on one hand and next before Pisces on the other, consequently the proper zodiacal representative of the intermediate sign, is the figure of a man, at full length, an human figure standing erect ; the right hand of which is grasping a club ; the left hand is holding an animal of some kind by the ears ; which animal, (to judge from the analogy of similar representations to which we shall refer by and by,) appears to be meant for an oryx or a gazelle.

Now both these animals were familiar to the Egyptians. Both were proper subjects of sacrifice among them ; especially the oryx ; of which we are told it is the only one the representation of which as actually immolated, or offered in sacrifice, is to be met with on the sculptures<sup>s</sup>. No one, we think, could deny that the attitude of a figure exhibited in this manner, holding an oryx by the ears or the horns with the left hand, and grasping a club with the right hand, might not be intended of one who was about to perform an act of sacrifice ; the subject of which should be this oryx, and the instrument of which should be this club. And such being the natural explanation of this zodiacal figure, what could possibly be inferred from it, except that this part of the sphere, for some reason or other, was connected with an act of sacrifice ; and the proper zodiacal representation of

<sup>s</sup> Birch, i. p. 54.

this part of the sphere was the performance of this act of sacrifice?

But in order to the further illustration and confirmation of this connection, we must have recourse to the testimony of the lunar mansions, particularly those of the third type, which only have been transmitted to posterity under proper names. In this type, there are four mansions, from the xxiid inclusive to the xxvth inclusive, the names of *three* of which, if not that of the *fourth* also, appear to have been taken from something connected with an *arm* and a *sacrifice*; that is, with such a representation as this of the eleventh sign of the sphere, in which both an arm and a sacrifice also are concerned. The name of the xxiid mansion (according to Kircher's version of the Coptic) was *Brachium Sacrificii*; that of the xxiiid, *Brachium Absorptum*; that of the xxivth, *Beatitudo Beatitudinum*; and that of the xxvth, *Brachium Absconditum*. We shall see hereafter that the mean longitude of this xxvth mansion, here denominated *Brachium Absconditum*, B. C. 847 was  $309^{\circ} 37' 20'' \cdot 970$ : and therefore 500 years before, B. C. 1347, it must have been  $302^{\circ} 40' 6'' \cdot 2$ . And as the first ten signs of the ecliptic must necessarily occupy the first 300 degrees, it is manifest that the ingress of this mansion must have fallen in the third degree of Aquarius. And the ingress into Aquarius, at this time, being assumed February 2 or 3, at a certain time, the ingress into this mansion in the third degree of Aquarius would be February 4 or 5.

To put this however in a clearer light, we must calculate the Julian date of the ingress of the mean sun into Aquarius, at the epoch of the second Phoenix period.

*Ingress of the mean sun into Aquarius, B. C. 1346, for the meridian of the ancient Heliopolis.*

						h.	m.	s.
Mean vernal equinox, B. C. 1347, at Jerusalem	April	4	15	47	52.8			
			—	15	44			
At Heliopolis	April	4	15	32	8.8			
Ten months		304	8	50	42			
Mean Hydron 1, B. C. 1346	Feb.	3	0	22	50.8			
Equation of the centre	—	2	0	38	31.8			
True Hydron 1.	Jan.	31	23	44	19			



And this being the date of the ingress, Feb. 2—3, the fourth day in Aquarius would be Feb. 5—6. And the mean longitude of the sun on that day ( $302^{\circ} 57' 25''$ ) would be very nearly the mean longitude of the xxvth mansion, type ii, B. C. 1347—1346,  $302^{\circ} 40' 6''$ .

Now we meet with a tradition in Plutarch<sup>t</sup>, that Horus the son of Osiris and Isis was the first to sacrifice to the sun; and that too on the fourth day of the month: *Λέγεται δὲ καὶ θῆσαι τῷ ἡλίῳ τετράδι μηνὸς ἱσταμένου πάντων πρώτος Ὡρος ὁ Ἰσίδος, ὡς ἐν τοῖς ἐπιγραφόμενοις γενεθλίοις Ὡρον γέγραπται.* This tradition connects together Horus, the *fourth* of the month, and a certain sacrifice to the sun: and if we might only assume that the fourth of the month, in such a case as this of a stated act of sacrifice to the sun by Horus, (the type of the seasons of the natural year,) was to be reckoned according to the calendar of the sphere, and according to the ingress of the mean sun into the different signs; Feb. 5, as answering to the fourth of Aquarius on that principle, would be a date of that description.

The Egyptian account of the fable of Osiris and Typhon, after the death of the former, represented Horus as the avenger of his father, and ultimately as the destroyer of Typhon, but not without a contest; in which Horus was said to have lost an eye, which he recovered only by means of the sun: *Καὶ λέγουσιν (Αἰγύπτιοι) ὅτι τοῦ Ὡρον νῦν μὲν ἐπάταξε νῦν δ' ἐξελὼν κατέπειν ὁ Τυφῶν τὸν ὀφθαλμὸν \* εἶτα τῷ ἡλίῳ πάλιν ἀπέδωκε<sup>u</sup>.* This eye the sun must have restored to Horus, as Plutarch himself must have inferred; to judge from the gloss which he subjoins to the tradition: *Πληγὴν μὲν αἰνιττόμενοι τὴν κατὰ μῆνα μείωσιν τῆς σελήνης, πῆρωσιν δὲ τὴν ἐκλειψιν, ἣν ὁ ἥλιος ἰάται, διαφυγούσῃ (τῇ σελήνῃ) τὴν σκιὰν τῆς γῆς εὐθὺς καταλάμπων.*

The popular tradition then relating to this fable handed down the belief of some contest between Horus and Typhon, in which the former was laid under a great obligation to the sun; which he might well be supposed to have acknowledged, when victorious at last, by some sacrifice to the sun.

\* The context requires *εἶτα τὸν ἥλιον πάλιν ἀποδοῦναι.*

<sup>t</sup> De Iside et Osiride, lii.

<sup>u</sup> Ibid. lv.

It appears too that tradition among the Egyptians recognised the existence of a principle called Ἀποπισ, which must have been supposed to partake of the nature of Typhon, since it was represented as hostile to Jupiter, and as subdued by him at last only through the assistance of Osiris. In this form of the tradition indeed Hellenic mythology is mixed up with Egyptian. Apopis however himself is represented as a brother of the sun: Ἄλλος δὲ λόγος ἐστὶν Αἰγυπτίῳ ὡς Ἀποπισ, ἡλίου ὦν ἀδελφός, ἐπολέμει τῷ Διὶ, τὸν δ' Ὅσιριν ὁ Ζεὺς, συμμαχήσαντα καὶ συγκαταστρεψάμενον αὐτῷ τὸν πολέμιον, παῖδα θέμενος Διόνυσον προσηγόρευσε<sup>w</sup>. Now Apopis, or Apophis, in this fable, is clearly nothing but the personification of Darkness; which is opposed indeed to light or the sun, and yet had the same origin as light itself: and therefore might be represented as the brother of the sun. Horus, the type of light among the Egyptians, is sometimes represented on the monuments in the act of killing this contrary principle of darkness, i. e. this Apopis<sup>x</sup>. There was a stated day too in the Egyptian calendar for sacrificing to the sun; though the date of this day is not exactly known from testimony. To assume that it was the ὀγδόη φθίνοντος (the 23d) of Phaophi, the day called the birthday of the staff of the sun, (βακτηρίας ἡλίου γενέθλιον,)<sup>y</sup> would be precarious. This stated sacrifice to the sun however was connected in some manner or other with Typhon also: Βουσιρίται δὲ καὶ Λυκοπολῖται ... πόπανα ποιοῦντες ἐν θυσίαις τοῦ τε Παῦνι καὶ τοῦ Φαωφὶ μηνὸς ἐπιπλάττουσι παράσημον ὄνου δεδεμένον. ἐν δὲ τῇ τοῦ ἡλίου θυσίᾳ τοῖς σεβομένοις τὸν θεὸν παρεγγυῶσι μὴ φορεῖν ἐπὶ τῷ σώματι χρυσία, μηδ' ὄνφ τροφήν διδόναι<sup>z</sup>. No doubt, in obedience to the injunctions of Horus, if he was the first to offer this sacrifice, and to institute it ever after: and for some reason or other in order to connect it with his victory over Typhon, of whom the ass was the type.

There seems then to be good reason to believe that the sacrifice of Horus to the sun, on the 4th of the month, had actually some reference to his contest with Typhon; in which he was assisted and befriended by the sun, as if fighting the battle of the sun against the principle of darkness, as well as

<sup>w</sup> De Iside et Osiride, xxxvi.

<sup>x</sup> Birch. i. p. 36.

<sup>y</sup> Plutarch, De Iside et Osiride, lii.

<sup>z</sup> Ibid. xxx.

prosecuting his particular quarrel with Typhon on his father's account. Nor can there be any doubt that the gradual predominance of light over darkness, which begins even at the winter solstice, is very perceptible every where at the ingress of the sun into Aquarius; a month after the solstice.

Here however we may again refer to the commentary of the Scholiast on the *Aratea Phænomena* of Germanicus Cæsar<sup>a</sup>, *ex Nigidio*; (part of which we quoted on a former occasion<sup>b</sup>;) relating to the ultimate fate of Typhon: "Nam post xviii dies dicitur consilium de eo (sc. Typhone) repente a diis factum ut interficeretur: ob idque usque hodie in Ægypto hos dies id est xviii festos perpetuo annis singulis instituerunt, in quibus diebus qui nascitur amplius quam eos non vivit. Typhon autem fulmine interficitur ab Apolline in templo Ægypti Memphis."

The Grecian Apollo was the Egyptian Horus: and therefore even this tradition ascribes the death of Typhon at last to Horus. But with regard to the other statement contained in this passage, the institution of eighteen holidays in commemoration of that event, which were still observed in Egypt; we have met with it nowhere except in this passage: nor with any intimation whatsoever elsewhere, from which we could possibly infer that any eighteen days in the Egyptian calendar in succession were kept as holidays. If this is the meaning of the statement, we should not hesitate to say it was mistaken. But possibly this is not its meaning; but something different from this, and more probable; yet such as might perhaps have been confounded with this, and have given occasion to a misconception and misstatement of this kind.

Now we consider it sufficient to explain these 18 days, that the last of them was a stated holiday, or may well be supposed to have been so; because it was the day of the death of Typhon. Typhon was killed on this day; and the day of the death of Typhon in the estimation of the Egyptians must be an holiday. We shall see by and by however that the contest between Horus and Typhon was supposed to have lasted three days<sup>c</sup>, before it was decided by his death;

<sup>a</sup> 285. <sup>b</sup> Supra Diss. xii. ch. i. sect. v. iv. vol. ii. 388.

<sup>c</sup> Cf. Plutarch, De Iside et Osiride, xix.

and that the first of these three was the first day of the sun in Aquarius according to the sphere of Mazzaroth, B. C. 1346, Feb. 2; the last was the third in the same, according to that sphere also, Feb. 4. Now Feb. 4 is the 18th day from Jan. 18: and Jan. 18 is the 181st day from July 22, the first day of the Sothiacal Julian calendar of the Egyptians: that is, Jan. 18 was the middle of the year in that calendar, and Feb. 4 was the 18th day after it. This seems to be the true explanation of the tradition which dated the destruction of Typhon on the last day of a certain number of days, 18 in all. The resolution of the gods, that he should be destroyed, was taken at the middle of the Sothiacal year; and executed on the third day of the sun in Aquarius, the 18th day afterwards.

But with regard to this mystical death of Typhon, on a certain day every year; it is to be explained as follows: There must in the nature of things be a stated period in every year, when not only the preliminary process of committing the seed to the ground, but the next part of the process, before the actual developement of vegetable life takes place, the corruption, the dissolution, and destruction of the substance of the seed in the ground, must be supposed to be over. There must be a time when the principle of life asserts its ascendancy, and springs into being out of the midst of its own death and destruction previously. There must be a nascent state of vegetable life preparatory to an adolescent; and an adolescent preliminary to an adult and a mature one. Now when this first part of the process, which passes beneath the ground, and affects only the seed committed to the ground, was over, the reign of Typhon was over: and this termination of his reign was his death. The mystical death of Typhon then must fall on the confines of these two consecutive parts or stages of the common process of the developement of vegetable life in all its forms in general. He must have died just as the one ended and just as the other began; just as vegetable life emerged from the ground, out of the death and destruction before going on beneath, to pass through the various stages of its own full and complete developement, which thenceforward awaited it. And forasmuch as the great natural instrument in fostering, rearing, confirming, and maturing all these incipient efforts,



and all these nascent forms, of vegetation, is the solar light and heat; it is no wonder that Horus, the type of both, should always have been represented as the instrument of the destruction of Typhon at the proper time; whatsoever that was.

And with respect to this time; it is well known that the Egyptians divided the natural year not into four seasons of three months each, but into three of four months each: and though it has been supposed that this division existed among them from time immemorial, we hope to shew, in due time, that it was not in reality older than the epoch of the Sothiacal period. They gave the name of the season of ploughing or sowing to the first of these divisions; that of reaping or housing to the second; and that of the water season to the third. These names explain themselves. Seed-time however in Egypt, as we have seen, beginning at the autumnal equinox; the four months which composed this first season, reduced to the celestial calendar, would be the four from the ingress of the sun into Libra to the ingress of the sun into Aquarius. The four which composed the second division would extend from the entrance of the sun into Aquarius to the entrance of the sun into Gemini; and the four, which went to the third division, from the entrance of the sun into Gemini to the entrance of the sun into Libra.

Now it is manifest that according to such a division of the year among the signs as this; the proper jurisdiction of Typhon over the principle of vegetable life must be confined to the first of these divisions. In this first division of the year, from beginning to end, in which this preliminary process of ploughing and sowing, and committing the seed to the ground, every where and in every way, was still going on; Typhon might be said to reign absolutely and without control: but not a moment beyond it; that is, as soon as the next division began. His reign must *then* come to an end, in order that the reign of another principle might *then* begin. The principle of vegetable life must reign as predominantly, as exclusively, as irresistibly and without control, through the whole of this second division, as the principle of vegetable death during the preceding. But in order to this, Typhon must be killed; and his death must be the work of

the sun. His associated and auxiliary principle of darkness must be killed along with him, by the predominant influence of light: and the death or destruction of both at the proper time must fall out critically on the confines of these first and second Egyptian divisions of the natural year.

Now to apply all this to the actual state of the calendar, B. C. 1347, at the epoch of the second Phoenix period, when the cardinal points all round the year were falling in the twelfth degrees of the sphere of Mazzaroth. The first of Zygon in the sphere of Mazzaroth being dated September 23, the 12th of Zygon would be October 4. And this would be the ingress of the sun into Libra, the first of the months of the first division of the year, according to that sphere. Reckon on then 120 degrees from the 12th of Zygon, in the sphere of Mazzaroth, and 121 days from October 4, B. C. 1347, and you come to the 12th degree of Hydron in the same sphere, February 2 B. C. 1346: which must consequently be the date of the ingress of the sun into Aquarius in the same sphere, and the beginning of the first of the months in the second division of the natural year according to the Egyptians.

Now this is precisely the time in the natural year when, according to the principles of this division itself, as we have seen, the power of Typhon, that is of vegetable death and destruction, must determine and cease; and the power of Osiris, that is of vegetable existence and life, must begin. But the Egyptians notwithstanding, for particular reasons, so ordered the fable and its circumstances, that this power should not cease even at this time without a struggle and a contest; in which the ultimate issue too, in the assertion of the independence and superiority of the principle of life, should be principally if not entirely due to the powerful and paramount cooperation and agency of the sun. They represented the contest therefore as waged three days; and the victory as decided, by the death of the antagonist principle Typhon, only on the third day. But these three days were the first three days of this second division of the year itself, the first three days of the sun in Aquarius; the stated dates of which in the sphere of Mazzaroth and in the calendar of Mazzaroth were February 2, 3, and 4.

Now, for this last circumstantial particular of the fable, (a contest between Typhon and Horus, beginning on the first day of this second division of the year, and protracted to the third, instead of being decided on the first,) in our opinion there was probably no reason whatsoever, except the peculiar relation of the two spheres, the immoveable sphere and the moveable, the sphere of Mazzaroth and the tropical sphere, one to the other just at this juncture also; compared with that which had existed between them at first. The first and original relation of these spheres was such that the first degrees of the moveable or tropical sphere all round the year fell in the fifteenth degrees of the immoveable sphere of Mazzaroth: and that relation had subsisted between them all through the first Phœnix period. The relation existing between them at this time was such that the first degrees of the tropical sphere, all round the year as before, were falling, or assumed to be falling, on the twelfth degrees of the sphere of Mazzaroth; and consequently the fifteenth degree or fifteenth day in the latter, all round the year, was now the fourth degree or fourth day in the former. Now the consequence of protracting the contest between Typhon and Horus over the first three days of the tropical division in Aquarius would be that the day after the decision of the contest, by his victory at last, would be the fourth day in the tropical Aquarius, and the fifteenth in the Aquarius of Mazzaroth: that is, it would fall on the date of origination of the tropical Aquarius in the Aquarius of Mazzaroth. And since it made a part of the fable also, that the consummation of this victory of Horus at last, through the assistance of the sun, should be followed by a solemn act of sacrifice to the sun, and by the institution of a perpetual act of sacrifice to the sun on the same day ever after; we see that the date of this sacrifice would thus be determined to the 4th of the tropical Aquarius in the Phœnix type of the second edition, but to the 15th of the Aquarius of Mazzaroth even in that, and to the first of the tropical Aquarius itself in the Phœnix type of the first edition. We are entirely of opinion that the stated sacrifice to the sun, the institution of which tradition attributed to Horus, on the fourth of the month, was intended to go round the year; and was deter-

mined in every instance to the fourth of the tropical sign, the 15th of the corresponding sign of Mazzaroth: so that knowing the Julian type both of the tropical sphere during the second Phoenix period, and also of the sphere of Mazzaroth from the first, we should have no difficulty in assigning the Julian dates of these stated days of sacrifice to the sun, all round the year.

It is an obvious inference from this account, that this fable of the contest of Horus and Typhon, whether devised at the epoch of the Sothiacal period three years before, or not, could not have been applied to the calendar of Mazzaroth, in the manner described, before the epoch of the second type of the sphere, B. C. 1347. The first act of sacrifice however, so performed to the sun on the fourth day of the tropical Aquarius, the 15th of the Aquarius of Mazzaroth, would be the most important of all. It is that which the Egyptians selected to give its peculiar zodiacal representation to the sign of Aquarius itself; for no reasonable doubt can now be entertained that the figure which we meet with on the sphere in this sign must be intended for Horus, who has either just sacrificed an oryx to the sun, or is about to do so. And it must be admitted too that, if such was the figure and such the act actually selected to characterise and represent this sign, there cannot be a stronger or more decisive proof, from the internal evidence of the representation itself, that this sign in particular must have received its name, and have been assigned its representative, at the epoch of the second Phoenix period, when the cardinal points were falling in the 12th degrees of the sphere of Mazzaroth, and when there was three days' difference between the original dates of the tropical sphere in the sphere of Mazzaroth, and those at this time.

We shall confirm this account, in the last place, by the testimony of one of the monumental sculptures. In the gallery of antiquities selected from the British Museum, there is a remarkable representation<sup>c</sup>; which exhibits the figure of Horus, standing on two crocodiles, and holding a lion and a scorpion each by the tail in his left hand, and an oryx, or gazelle, by the horns or the ears, and also two snakes, in his

<sup>c</sup> Part i. 39, 40, fig. 69. See our own engraving of this figure at the end of volume iii. No. 2.



right hand. In our opinion, this representation is intelligible; though we do not find it explained by the editor of the "gallery." The crocodile, as we have learnt from Plutarch<sup>d</sup>, was the type of 60; of any number of 60; but particularly of 60 degrees: and two crocodiles, on this principle, were the type of 120 degrees. Now 120° was just the length in degrees of each of the divisions of the year among the Egyptians, in terms of the sphere of Mazzaroth. These two crocodiles therefore are here the types of the first division of the year; of the first 120 degrees, or 121 days: a division which properly belonged to the jurisdiction of Typhon. The inscription at the back of the representation, as far as it can be made out (though it is not very intelligible) appears to allude to them as just pierced or killed by Horus. It is implied therefore, even by these crocodiles and by their position under the feet of Horus, that the period of the jurisdiction of Typhon is now at an end. The oryx in the right hand of Horus intimates that he has either already offered the sacrifice to the sun, which consummated his victory, or that he is preparing to do so. The other figures on the sculpture admit of a rational and consistent explanation also. The scorpion was a type of Typhon; but only in the first division of the year. Horus holds that by the tail, to imply that this too is now deprived of the power to harm, which before resided in its tail. The lion was the type of the midsummer sun; the sun in Leo: and Aquarius is the sign diametrically opposite to Leo; in which consequently the solar heat is as harmless and as cherishing as it is burning and scorching in Leo: and to intimate that too, Horus holds this lion also by the tail; for the tail is that part of the lion which most of all sympathizes with its fury when stimulated and provoked to an unusual height. Lastly, he holds two snakes in his right hand. Now the snake was the emblem of the sphere: and two snakes are consequently the emblem of two spheres. They are held by the tail, in the right hand of Horus, in which also he holds the oryx; to imply that the date of the sacrifice of this oryx was the common date of these two spheres, the date in which the tails of both might be said to meet; that is, the 15th degree of Mazzaroth and

<sup>d</sup> *Supra*, sect. ix. p. 383.

the first degree of the tropical sphere. Such was the proper origin of the two spheres in the first and most proper type of each, that of the first Phoenix cycle\*.

To conclude then the account of this sign and of its representative. The type of Aquarius must be later than this of Horus and of the sacrifice to the sun: and yet it may have been substituted for it by the Egyptians themselves. The symbol of this sign is the usual hieroglyphical symbol for water supposed to be in motion; two or three wavy lines between a straight line at the top and the bottom. Such a symbol must always have been intended for the zodiac of Aquarius. If this symbol was the invention of the Egyptians, so must this representation of Aquarius have been. We should be of opinion that the original zodiac of the eleventh sign, Horus and the sacrifice to the sun, in the course of time was considered by them to involve too much of the esoteric principles of their two spheres, or of the mysteries of their own religion, to be generally communicated to the

\* It is mentioned *obiter* in Moses Chorenensis, (iii. 62. p. 315, *Londini*, 1736, Whiston,) that an holiday of a certain kind was formerly observed at Alexandria, on the 25th of Tybi, which he calls *Festum vesanum* (one of the fooleries of the ancient idolatry and superstition of Egypt) *dum bestiis onerariis coronas imponunt, et cultum jumentis tribuunt, ac far et placentas offerunt.*

The 25th of Tybi in the Alexandrine calendar, and in the common years of the cycle, coincided with January 20; and January 20 is the 121st day from September 22 inclusive; and September 22, after B. C. 672, was the stated date of Zygon in the sphere of Mazzaroth, the first of the three divisions of the Egyptian year, from the first of Zygon in the calendar of Mazzaroth, to the first of Hydron or Aquarius.

We have little doubt that this holiday was observed at Alexandria, as the beginning of that division of the year, with the ingress of which the reign of Typhon was supposed to be at an end; and crowns or garlands might purposely be put on beasts of burden at the same time, (which must include the ass in particular, otherwise subject to Typhon,) to intimate that they too were now emancipated, for the rest of the year, from his yoke: and for that reason might well share in the common festivity and rejoicing.

The Romans had a *festum asinorum* in their calendar too, which fell some where about the same season of the year, (xviii. kal. Jan., Dec. 15, the Consualia; cf. Plutarch, *Quæstiones Romanæ*, xlviii); and therefore might have been borrowed from this Egyptian one. They had another on the feast day of Vesta, v Id. Jun.; see Ovid, *Fasti*, vi. 249: 311.

world. And having in the mean time become acquainted with the Greek fable of Deucalion and the flood, and with the Hellenic tradition too which attached the flood itself to the same season of the year as the eleventh sign of the sphere; they would not have much difficulty in turning the Horus of their sphere into the Deucalion of the Greeks, by substituting the urn or pitcher of water for the oryx which he was holding in his hand. And we have little doubt that this was done accordingly at the epoch of the last revision of the sphere, B. C. 848\*.

\* We have already had occasion to mention an Egyptian calendar preserved in the British Museum; of which an account appeared in the Dublin University Magazine, No. clxiv, August, 1846, pag. 187-191, under the title of "the oldest of all almanacs." The author of this account was some one well acquainted with the language of hieroglyphics; and it would not be difficult perhaps to assign his name. As this calendar bears on the questions which we have been considering, and will be found to confirm our conclusions; we embrace this opportunity of making some remarks upon it.

From an entry at the back of it, it appears that it professes to bear date on the 28 Pharmuthi in the 56th year of Rameses the Great. But its true age is not to be collected from any assumed year of a reign which never had a real existence, except in the chronology of the monuments. On the contrary, the reign of this king and the 56th year of his reign are to be determined by the true age and date of this calendar.

The result of our preceding investigations has been to ascertain the fact, that the period assigned to the proper jurisdiction of Typhon, in the natural year and among the seasons, was 121 days, from the autumnal equinox, October 4, to the entry of the sun into Aquarius, Feb. 2: that on this day Feb. 2, the first of the sun in Aquarius, and the first in the second division of 121 days in the natural year, his ascendancy was supposed to expire, and the contest between him and Horus, destined to end in his defeat and death, was supposed to begin.

Here then we observe first of all, that this Julian term, Feb. 2, the proper date of the ingress of the sun into Aquarius or Hydron, in the sphere of Mazzaroth, B. C. 1346, being supposed to continue a fixed term of that kind ever after, would be found after B. C. 672 to have dropt one day, and to have become Feb. 1.

Next we observe that in this calendar, (p. 190) Thoth 26 is marked as a *bad day*; and this note is attached to it: "Do nothing at all this day. This is the day of the combat of Horus and Typhon." And that this must have been the first day which could be so marked, and for such a reason, appears from a notice appended to Thoth 25 (p. 187,) shewing that day to be partly good, partly bad; or as the translator characterises it, G. G. M. i. e. *Good, good, middling*. It may be inferred then that, if

SECTION XIII.—*On the name of the twelfth sign, Ἰχθύες, Ἰχθυὼν, Pisces, Icthyon; or the Fishes.*

It remains only to consider the zodion of Pisces. This will probably give us the least trouble of all. We dismiss

there was a stated date for the commencement of the combat of Horus and Typhon, it was falling, when this calendar was compiled, on Thoth 26. It appears however, (p. 190.) that the combat was still continuing on Thoth 27; consequently that it lasted two days at least. In fact it may be inferred that it was supposed to be decided by the victory of Horus, only on the third day, Thoth 28: to which the following remark is attached: "If thou seest any thing at all this day, it will be fortunate." So that the character of this day was undoubtedly good: as it must be, if Typhon was supposed to be subdued by Horus on this day. The combat between them then having begun on the 26th, and being still pending on the 27th; it could not have been decided at the earliest before the 28th: and on this, that is on the third day, it appears to have been decided. We find it directed too, that these three days, Thoth 26, 27, 28, should be passed by people as travellers in commemoration of the wanderings of Isis: and if her wanderings thus lasted three days, and no more; this combat of Typhon and Horus might last as long, but no longer.

Now we have already been made aware of the true explanation of this supposed duration of the contest between Horus and Typhon; that it was purposely made to begin on the first day of the sun in Aquarius, and was purposely made to be protracted three days, in order that it might be decided on the fourth day of the sun in Aquarius; that is, that it might begin in the first degree of the tropical Aquarius, as laid down in the 12th degree of the Aquarius of Mazzaroth, according to the proportion existing *de facto* between them at the epoch of the second Phœnix period, when this fable was first invented, and might end in the fourth degree of the former, the 15th of the latter, according to the proper proportion of the two spheres, as laid down, one in terms of the other, from the first; the proportion of the first Phœnix period; the proportion of the epoch, B. C. 1847; the normal relation of the tropical sphere to the sphere of Mazzaroth at all times.

On this principle, we have ascertained a fixed Julian date, Feb. 2 before B. C. 672, and Feb. 1 after, on which this contest between Horus and Typhon began: and this calendar furnishes us with an equable date, coinciding with this fixed Julian date at the time when it was itself compiled, Thoth 26. We have nothing therefore to do, but to determine the time when Thoth 26 in the equable style was falling on Feb. 1 in the Julian; and we shall ascertain the age of this calendar.

Now there is no time later than B. C. 1350 or B. C. 1347, when Thoth 26 could have been coinciding with Feb. 1, except Nab. 199, æra cyc. 3458 B. C. 549—Nab. 203 æra cyc. 3462 B. C. 545. Let us assume the middle



at once all those explanations of the idea or of the name of this zodion which derive it from the fish of Syrian mytho-

year, Nab. 201, æra cyc. 3460, B. C. 547; when the first of the Nabonassarian Thoth was falling Jan. 7 at midnight: and therefore the 26th on Feb. 1 at midnight. This coincidence determines the date of the calendar to Nab. 201 B. C. 547: and it may be confirmed by the following also.

There is a date at the back of it, as we have observed, Pharmuthi 28 in the 56th year of Rameses. The true age of the calendar being assumed to be B. C. 547, reckon on 720 years, equivalent to six periods of 120 years, or to six months recession in the Nabonassarian type of equable time, and you come to B. C. 1267. Call this the 56th year of Rameses. Reckon on, afterwards, 55 years more, and you come to B. C. 1322, which on this principle must be his first. Now this is the Nabonassarian epoch of the Sothiacal period itself: and so far as a purely arbitrary and factitious system of chronology, adapted to an equally false and unreal history, can be said to follow any certain rule, the reign of this king, the greatest of the monumental kings, the hero of the whole of the historical romance consigned to the monuments and sculptures, does appear to have been purposely attached to the Nabonassarian epoch of the Sothiacal period, B. C. 1322. These two coincidences therefore do mutually confirm and strengthen each other. There is yet another proof of the true date of the calendar, which is just as decisive as either of these, if not more so.

"The 21st Athyr," in this calendar, as the translator observes, "was throughout fortunate. It was the day of the Panegyry or festive assembly of Mu, the son of Ra; i. e. light, the son of the sun. It was the day when Mu and Neith were together 'in the cabin of the barge of the sun.'"

We consider this a sufficiently plain intimation that the 21st Athyr in question was the date of the vernal equinox. Now B. C. 547, Nab. 201, Thoth 1 falling Jan. 7 at midnight; Phaophi 1 must fall Feb. 6 at midnight; and Athyr 1 March 8 at midnight; and therefore Athyr 21 March 28 at midnight; and by the primitive rule March 27 at 18 hours from midnight. Our tables will shew that the true vernal equinox for the meridian of Jerusalem this year was falling March 27, 17 h. 9 m. 34 s. 12 th, and for that of Memphis only 15 m. 44 s. earlier\*. It is evident that this date might be reckoned from March 27 at sunset: in which case it would coincide exactly with Athyr 21.

These three coincidences, Thoth 26 and Feb. 1, Athyr 21 and March 27-28, and the first of Rameses the Great, inferentially obtained from the date at the back of this almanac, appear to us to fix and determine its true age, Nab. 201, B. C. 547; which falls in reality in the 14th year of Amasis;

		h.	m.	s.
* Mean V. E. at Jerusalem, B. C. 547, March 29		10	59	52.8
		—	15	44
At Heliopolis,.....	March 29	10	44	8.8
Equation of the centre.....	— 1	17	50	18.6
True V. E.....	March 27	16	53	50.2

logy; the type of the Syrian Derke or Derketo: a much later conception than this of the fishes of the sphere.

The name of the Fishes was given by the Egyptians to the

and therefore vindicates an high degree of antiquity to this calendar, but not such an antiquity as the hypotheses of the learned translator of it and commentator upon it would assign it. He endeavours indeed to prove that its date *may* go back to B. C. 1767, and *must* do so to B. C. 1112 or 1111: i. e. that this latter was the 56th year of Rameses indicated by it, and therefore B. C. 1167–1166 was the first. See p. 188, 189. His conclusion rests principally on the explanation which he gives of a notice attached to Phaophi 14: "This is the day of the assumption of the crowns of Upper and Lower Egypt by Horus." But to make this appear he is obliged to assume that the chronology of this almanac is the same with that of the sculptures in the Memnonium, and at Medinet Habou: an assumption which in our opinion is precarious and gratuitous. True history and true chronology will, of course, be consistent with itself, and will be the same under all circumstances. But to expect consistency and uniformity in a purely factitious system, in which every one was at liberty to add and to detract, to alter and to modify, *ad libitum*, is absurd.

As to this date of the assumption of the double crown, and on Phaophi 14, we are able to prove that among the number of *dies Egyptiaci*, i. e. *ἡμέραι ἀποφράδες*, *dies atri*, *dies religiosi*, transferred, in the course of time, from the Egyptian to the Roman calendar, Phaophi 14 was one: which being the case, it never could have been the stated date of so auspicious an event as the assumption of the double crown by Horus. If it was ever the date of such an event as that, it must be *per accidens*; and as the simple and natural effect of the revolution of the equable year itself. We see no reason why this date of the assumption of the two crowns by Horus should not have been attached to a stated season of the natural year, just as much as his contest with Typhon, and his victory over him at last, and his sacrifice to the sun in commemoration of it: and if so, to Aquarius. And this appears to us to be strongly confirmed by the same monumental representation of which we last gave an account (p. 408). For besides the other particulars of that representation which we specified, there are two sceptres also, one on the right hand of Horus, the other on the left; one surmounted with the papyrus, the other with the lotus. Now the lotus was the symbol of Upper Egypt; and the papyrus of Lower Egypt. These two sceptres must consequently be symbols in this representation of the double crown; and as the whole of the rest of this sculpture belongs to the sign of Aquarius, this part of it must do so too. Consequently the assumption of the double crown must have been a date in Aquarius.

Now the first of Thoth Nab. 201, falling on Jan. 7 at midnight B. C. 547, Phaophi 1 would fall on Feb. 6 at midnight: and Phaophi 14 on Feb. 19 at midnight. And the Julian limits of Hydron, B. C. 547, being critically Jan. 21 and Feb. 20, it is evident that Phaophi 14 Feb. 19 was

xiith sign of the zodiac, in all probability, for three reasons.

i. Because this was the sign which immediately preceded the

the last day of Aquarius or Hydron. The assumption of the double crown fell out critically on the last day of Hydron; and the beginning of the reign of Horus over all Egypt, properly so called, fell out on the first day of Ichthyon or Pisces: with which sign, as we shall see by and by from the testimony of the lunar mansions, he was always supposed to have been specially connected.

We shall now therefore briefly review the dates in this calendar; such of them at least as have been translated: premising however that the calendar is imperfect. It begins on the 19th of Thoth and breaks off on the 13th of Pachon, (p. 187.)

*Egyptian Calendar of the date of Nab. 201, B. C. 547. Epoch Thoth 1 at midnight, Jan. 7. at midnight.*

---

i Month, Thoth. Jan. 7 inclusive, to Feb. 5 inclusive.

Day 1. Jan. 7.

— 19. — 25.

— 23. — 29. A fortunate day throughout. We have already observed that Thoth 23 was the date of the mean vernal equinox in the year before and in the year after the flood: to which circumstance it might owe this distinction.

Day 25. Jan. 31. Good, good, middling. Exode on this day of the Lioness to the eastern mountains, p. 189: which the translator understands of the lioness in Memphis. Offerings to Osiris on this day.

Day 26. Feb. 1. First of the days of the combat of Horus and Typhon.

— 27. — 2. Three days and nights to be passed as travellers, in com-

— 28. — 3. memoration of the wanderings of Isis.

---

ii Month, Phaophi. Feb. 6 inclusive to March 7 inclusive.

Day 4. Feb. 9. A bad day.

— 23. — 28. —

— 27. Mar. 4. —

— 28. — 5. —

---

iii Month, Athyr. March 8 inclus. to April 6 inclus.

Day 13. Mar. 20. Exode of Isis. This date is remarkable as recognising Athyr 13 at this time as the stated date of a going forth of the statue of Isis in this month. The 17th was the day sacred with the Isiaci in every month. At the time of the institution of the Isia, Athyr 17 in the cyclical corresponded to Athyr 12 in the Nabonassarian type. At

vernal equinox and always did so; and therefore at the beginning of things, as much as ever after. ii. Because the

this time, Nab. 201, Athyr 13 in the latter was corresponding to Athyr 12 in the former. If the dates in this calendar were actual dates, (of which we have our doubts,) we think it probable that the Exode of Isis in Athyr was purposely attached to the Nabonassarian date which answered to the cyclical Athyr 12. This was now Athyr 13. Every 120 years it would rise one day; and B. C. 128 (just 600 years =  $120 \times 5$ , after B. C. 728) it would be found to have risen to Athyr 17: and there it is very conceivable it might be made to stop.

Day 14. Mar. 21.

— 18. — 25. Exode of Bast.

— 21. — 28. Panegyry of Mu, son of Ra. Mu and Neith together in the barge of the sun. It was the day of the true vernal equinox.

---

iv Month, Chœac. April 7 inclus. to May 6 inclus.

Day 2. April 8. A fortunate day throughout. All the gods and goddesses rejoicing in the celestial Panegyries.

It is the epoch of the lunar mansions, April 7 at 18 h. to April 8 at 18 h. Hence its peculiar goodness of character.

---

v Month, Tybi. May 7 inclus. to June 5 inclus.

Day 4. May 10. A good day.

— 12. — 18. Middling.

— 17. — 23. Persons not to wash themselves in water on this day. It is the date of Didymon in the sphere of Mazzaroth, after B. C. 672; i. e. of the month sacred to Osiris and Isis, both types of the watery principle, especially the latter, who was born ἐν πανύγροισ.

— 20. — 26. Exode of Bast.

---

vi Month, Mecheir. June 6 inclus. to July 5 inclus.

Day 1. June 6. A fortunate day. Panegyry of the gods and goddesses on it.

The 1 of Mecheir was the Apis date of July 21 B. C. 728. That might make it auspicious ever after. Or it might make it fortunate at present, that it was coinciding with the approaching period of the inundations; being the third day in the vith mansion.

Day 11. June 16. Good throughout. Panegyry of Neith at Saïs. It was the day before the Cubit mansion, June 17.

Day 14. June 19. A direction occurs here: "Don't go out of doors before daylight:" implying that the night was dark. The



world, as they well knew, was called into existence out of an antecedent state of chaos or water; of which nothing could

new moon, B. C. 547, fell May 28. So that June 19 was the 23d luna; when there would be no moon until after midnight.

It is added, "This is the day of looking at the Crocodiles pursued by Typhon before the great boat."

Plutarch, *De Iside et Osiride*, l. observes, 'Εν δ' Ἀπολλωνος πόλει (the city of Horus) *νενομισμένον ἔστι κροκοδείλου φαγεῖν πάντως ἕκαστον. ἡμέρα δὲ μιᾷ θηρεύσαντες ὄσους ἂν δύνωνται, καὶ κτείναντες, ἀπαντικρὺ τοῦ ἱεροῦ προβάλλουσι, καὶ λέγουσιν ὡς ὁ Τυφῶν τὸν Ὀρον ὑπέδρα κροκόδειλος γενόμενος.*

Now Mecheir 14 was just 120 days distant from Phao-phi 14; and June 19 from February 19. It is possible that the date of the pretended escape of Typhon from Horus in the form of a crocodile was fixed on purpose just 120 days from Feb. 19. Typhon must escape from Horus in some manner or other, if he was to be alive again, and ready to perform his usual part, at the autumnal equinox: and he was never more likely to do so than just at the beginning of the inundation, or under any form so probably as that of a crocodile.

---

vii. Month, Phamenoth. July 6 inc. to Aug. 4 inc.

Day 5. July 10. Exode of Neith in Saïs. "They see the good things of the night, at the third hour." The translator understands this of the feast of lamps (or *λυχνόκαϊα*) at Saïs, of which Herodotus, ii. 62. B. C. 547, July 10, the sun would rise at Memphis about 5 A. M. and set about 7 P. M. The length of the night would be 10 hours, and every hour 50 minutes long. The third hour would consequently begin about 1 h. 40 m. after sunset, 8 h. 40 m. P. M; i. e. at the expiration of twilight. The moon being new June 27, the 10 July would be the lunar 13, or 14; that is, very near the full: and that would be inconsistent with the stated time of a feast of lamps.

Day 18. July 23. Panegyry of Neith.

— 23. — 28. Panegyry of Horus.

— 28. Aug. 2. Panegyry of Osiris.

These dates in Phamenoth fall clear of the Natales Apidis, supposing those to have been Phamenoth 15, B. C. 547. Nab. 201, Æra cyc. 3460, answered to Apis cycle xviii. 2. epoch, Epagomene 5.

---

viii. Month, Pharmuthi. Aug. 5 inc. to Sept. 3 inc.

be so proper a type as the fish, the natural production or natural inhabitant of the element of water: the first of animals too which had actually come into existence, in connec-

ix. Month, Pachon. Sept. 4 inc. to Oct. 3 inc.

Day 5. Sept. 8. Panegyry of Osiris, Lord of Tattou.

— 13. — 16. End of the extant part of the Calendar.

It is evident, from the above review of the contents of this Calendar, that it is quite as remarkable for what it omits as for what it contains, and even more so. None of the really sacred dates is to be found in it; and yet every date which it specifies falls clear of them. Nor do we find in it the days specified by Plutarch, from the calendar of his own time. The translator indeed has not given us the whole of it in his version; and it is to be regretted that he has not. On the whole, we cannot but think it extremely open to suspicion and doubt, whether the dates mentioned in this calendar are actual dates or not; that is, are dates of days and ceremonies as they were actually observed in the Egyptian calendar B. C. 547.

With regard to the date at the back, we should consider it purely a fictitious and artificial date; and that it was probably obtained as follows:

If you reckon from January 7, as the first of Thoth, you come to September 1, as Pharmuthi 28.

Thoth 1.	Jan. 7.	Tybi 1.	May 7.
Phaophi 1.	Feb. 6.	Mecheir 1.	June 6.
Athyr 1.	March 8.	Phamenoth 1.	July 6.
Chœac 1.	April 7.	Pharmuthi 1.	Aug. 5.

---

Pharmuthi 28. Sept. 1.

---

And if you reckon 43 days back from Sept. 1, you come to July 20:  
 $63 - 43 = 20$ .

Now 720 years from B. C. 547 bring us to B. C. 1267; in which year Thoth 1 (Nab.) actually fell on July 6. And if Thoth be called Phamenoth, and Phaophi Pharmuthi, Pharmuthi 1, on this principle, would fall on August 5.

July 20 was the Nabon. Thoth 1, B. C. 1322, the supposed 1st year of Rameses. And the 44th day after (i. e. September 1 = Pharmuthi 28) was purposely assumed as the day of his accession, in order that the date of the assumption of crowns by him, Phaophi 14, B. C. 1322, might answer nominally to that of Horus, Phaophi 14, B. C. 547. Phaophi 14 really answered to September 1, B. C. 1322; just as (on the hypothesis which we have been supposing) Pharmuthi 28 did B. C. 1267, or B. C. 547. Thus this date of Pharmuthi 28 was taken from the actual state of the Calendar B. C. 547; but was purposely carried back to B. C. 1267, the supposed 56th of Rameses, in order that it might agree to the same date (September 1) at that time, as Phaophi 14, B. C. 1322; and this date that of the assumption of the double crown of Egypt by Rameses himself.

tion with the present system of things. iii. Because at the time of the deluge, when the earth was again reduced to the same antemundane state of water, the primitive calendar itself was falling in Pisces, and in the 9th or 10th degree of Pisces. For the mean vernal equinox was falling on April 12; and therefore the first of Pisces on March 12: and the 9th of Pisces on March 20; which was the date of the first of Thoth that year also.

For these reasons, the Egyptians might determine to give the name of the fish to this sign, and ultimately to lay it down in the zodiac in the form of the fish. And on this principle it is easy to explain why they should have introduced two fishes into the sphere, instead of being content with one. They had to represent in this manner a double production of the same or a similar state of things out of water; that of the antediluvian and that of the postdiluvian world. They naturally therefore made use of two emblems of this kind for such a purpose.

As to the algebraic symbol of this sign, we have already remarked on its resemblance to that of Gemini. It consists of two semicircles, turned edgeways one to the other, and joined by a straight line drawn through the centre of each. These are either the two halves of which the terraqueous globe itself consists, land and water; or, as we rather apprehend, the two worlds, the world before and the world after the flood—individually indeed distinct states of being—yet virtually the same, and therefore united in the manner in which we have described: in which only two semicircles could be united at all. It might be imagined perhaps that these two semicircles were meant of the two halves of the same cosmogonic egg: and that would be possible, after the introduction and reception of the doctrine which taught the production of the universe from an egg of that kind. But on this principle there would have been no difference between the symbol of Iethyon and that of Didymon; and this we should not consider to be probable.

## CHAPTER VII.

*On the third Phoenix period, and on the third type of the sphere.*

SECTION I.—*Division of the sphere in octavis partibus.*

ACCORDING to the tables of our Fasti Catholici, we have the mean vernal equinox, for the meridian of Jerusalem, B. C. 847,

			h.	m.	s.	th.
		March 31	18	47	52	48
Subtract	..	..		15	44	
At Heliopolis or Memphis	..	March 31	18	32	8	48

At the epoch of the second Phoenix period B. C. 1347 we had the mean vernal equinox for the same meridian,

			h.	m.	s.	th.
		April 4	15	32	8	48
Subtract	..	..	3	21		
B. C. 847	..	..	March 31	18	32	8 48

So that at the epoch of the third period it would be found falling March 31 18 h. 32 m. 8 s. 48 th., or about 6 hours of mean time after noon, its proper epoch in the Phoenix period perpetually.

It follows that at this juncture of time the cardinal points of the tropical sphere were falling on the eighth degrees of the sphere of Mazzaroth; critically so in the case of the first and the most important of all, that of the mean vernal equinox, and proportionably so in each of the other three cases all round the sphere. If therefore the tropical sphere was revised at this time, as the rule of the Phoenix cycle required it to be, and the proportions of that sphere to the sphere of Mazzaroth were adjusted afresh according to the truth of the case, as it actually held good at the time; the cardinal points of the former must have been laid down in the eighth degrees of the latter. From this time forward therefore but not before, (the epoch of the third Phoenix period, B. C. 847, or at least not later than that,) there might be, and we may take it for granted there would be, another delineation of



the moveable in terms of the immoveable sphere, actually in existence; the relation of which to the immoveable sphere could not be more correctly expressed than by this designation of the sphere which was laid down *in octavis partibus*. A designation which even as so expressed, we should now perceive, never was ambiguous, nor calculated to occasion any difficulty concerning its meaning; nothing being intended and nothing being to be understood by it, except that the first term of this moveable sphere *was* the eighth term of the immoveable sphere: the mean vernal equinox in this sphere was now March 31 reckoned from mean noon; the mean summer solstice was July 1; the mean autumnal equinox was September 30; and the mean winter solstice was December 30. And these distinctions, it would also be understood, as made and laid down at this time, were true to nature; in the first of the number almost critically and punctually so; and in each of the rest according to a cyclical or positive rule, which could not differ materially from the truth of nature, though it could not be absolutely the same with it.

It is evident therefore that Achilles Tatius had good reason for his assertion that, besides a sphere laid down *in quintis decimis partibus*, and besides a sphere laid down *in duodecimis partibus*, there was also a sphere laid down some time or other *in octavis partibus*. We might very well however have doubted beforehand whether any fourth sphere, later than this, and laid down, according to the same principle, *in quartis* or *quintis partibus*, much less a fifth sphere of later date even than that, and laid down in a similar manner *in primis partibus*, from any extant testimony or allusion to its existence, could be supposed to have been known to the ancients. The fourth Phœnix period would not bear date before B. C. 347, which was only one year after the final reduction of Egypt by Artaxerxes Ochus, and after his treatment of that country as soon as it fell again under the yoke of the Persian empire; of which we gave an account on a former occasion<sup>e</sup>. Every thing in Egypt was then in confusion, both public and private. The country was full of dejection, distress, and despondency: and its religion itself,

<sup>e</sup> *Supra*, Diss. xiii. ch. vi. sect. iii. vol. ii. 575.

and whatsoever was most characteristic of it, was well nigh extinct: its gods and its records had both gone into captivity into Persia. This was not the time nor the season when such a thing as a deliberate revision of the sphere, attested and sealed by a supposed new appearance of the Phoenix, (a bird which was necessarily one of good omen, and the happy and auspicious harbinger of another prosperous period of 500 years,) was either to be attempted or to be executed. Besides which the true theory of the Phoenix cycle, and its proper application in practice, long before this time had been laid aside, to make way for a very different doctrine relating to the theory, and for a very different rule of administration in practice; not derived too from the ancient Egyptians, but introduced into Egypt from Chaldæa, as we believe: of which we shall have to give an account by and by. It is not surprising therefore that no authentic testimony is any where extant, even to the supposed appearance of a Phoenix, at the epoch of the fourth period, according to the old and proper measure of the period itself, B. C. 347; much less to any third type of the sphere laid down at such a time on the proper Phoenix principle, *in quartis* or *quintis partibus*. And yet it is a singular coincidence that the only third manifestation of the Phoenix, supposed to have been duly attested, actually known to the ancients, stands at the distance of 120 years from the epoch of this fourth period, B. C. 347; for we have already determined the date of that third manifestation to B. C. 227, in the reign of Ptolemy Euergetes I.<sup>f</sup> Nor do we think that this coincidence was accidental, and not the effect of contrivance in some manner or other.

The recession indeed of the tropical points on the sphere of Mazzaroth would continue to go on, from the date of the third Phoenix period, B. C. 847, just in the same way as before; and though they might be falling in the eighth degrees of the sphere of Mazzaroth B. C. 847, the time would arrive when they must be found to be falling in the first degrees. This coincidence would be produced at last by the single, but necessary, operation of the law of precession: and whether the two spheres should ever be artificially combined in that particular state of relation to one another, or not,

<sup>f</sup> Supra, ch. ii. sect. iv. p. 234, 235.

nature itself would inevitably effect the combination in question at last; nature, in due time, would lay down the tropical in the first degrees of the sphere of Mazzaroth. But before this, as we have observed, in strict conformity to the Phoenix rule, there should have been an intermediate combination of the two spheres, one *in quartis partibus* of the other: of the fact of which, meanwhile, nothing is known, and which we may take it for granted never was actually made.

The sphere of nature indeed (the natural tropical sphere) can never bear date in any but the first degrees; and the ancients who lived to see the first term in the moveable sphere not only come up to the first in the immoveable, but even pass beyond it, and begin to recede upon it, might very well speak of the sphere of their own time as bearing date *in primis partibus*, and in nothing but *primis partibus*: but it would be manifest that they could not mean the same thing by these *primæ partes* in their time, as by the *quintædecimæ partes*, the *duodecimæ partes*, or the *octavæ partes* of former times. Those *primæ partes* must be referred to the sphere of nature; these other parts to the sphere of Mazzároth, and to the relation of the sphere of nature to the sphere of Mazzaroth.

This coincidence of the two spheres, as we have already observed<sup>g</sup>, was fast approaching in the time of Hipparchus; and it is well known that Hipparchus himself dated the cardinal points of the tropical sphere *in primis partibus*; of their own sphere too, not of the sphere of Mazzaroth. Thus in his commentary on the Phænomena of Aratus, he speaks of the summer solstice as coinciding with the first degree of Cancer<sup>h</sup>: 'Εν ταύτῃ (leg. ἐν αὐτῇ) τῇ τροπῇ τοίνυν τὴν ἀρχὴν ἐπέχει τοῦ καρκίνου. καὶ ὑπὸ τῶν ἀρχαίων δὲ μαθηματικῶν πάντων σχεδὸν ἢ τῶν πλείστων τοῦτον τὸν τρόπον ὁ ζωδιακὸς κύκλος διήρτητο: that is, so that the ingresses into the different signs should fall in the first degrees all round the sphere: a mode of dividing the sphere, which, as understood of the tropical sphere, was strictly conformable to the rule of antiquity from the first. The same coincidence had already taken place, and might now be considered to be past, in the time of Ge-

<sup>g</sup> Supra, ch. iv. sect. ix. p. 309.

<sup>h</sup> Uranologium, 212. D. E. lib. ii. cap. iii.

minus: and Geminus too lays down the cardinal points *in primis partibus*; and these *partes primæ* in his sphere can be nothing but the *primæ partes* absolutely, the first degrees of the signs of the natural or tropical sphere. Ἐαρινὴ μὲν οὖν ἰσημερία γίνεται περὶ τὴν τῶν ἀνθέων ἀκμὴν ἐν κριοῦ μιᾷ μοίρᾳ· τροπὴ δὲ θερινὴ γίνεται περὶ τὴν τῶν καυμάτων ἐπίτασιν ἐν καρκίνου μιᾷ μοίρᾳ!—Καὶ ἐπὶ τὴν πρώτην μοῖραν τοῦ καρκίνου παραγενόμενος (sc. ὁ ἥλιος) τὴν θερινὴν τροπὴν ποιεῖται . . καὶ ἐπὶ τὴν πρώτην μοῖραν τῶν χηλῶν παραγενόμενος τὴν φθινοπωρινὴν ἰσημερίαν ποιεῖται . . . . καὶ ἐπὶ τὴν πρώτην μοῖραν παραγενόμενος ὁ ἥλιος τοῦ ἀγόκερω τὴν χειμερινὴν τροπὴν ποιεῖται<sup>k</sup>: just as in the Scholiast on Aratus the natural phænomenon of the equinox is recognised as taking place, where only in the natural sphere it could take place, in the first degrees; though this Scholiast himself was aware of an artificial date of the same thing at this very time in the eighth degrees: Ἀμφοτέραι δὲ αἱ ἰσημερίαι ἐν αὐτῷ γίνονται, αἱ ἡμέραι δηλαδὴ ἴσαι ταῖς νυκτί· ἰσοῦνται γὰρ περὶ μόνas τὰς πρώτας μοῖρας<sup>l</sup>.

Though then Achilles Tatius spoke also of a fourth type of the sphere, laid down *in primis partibus*, he cannot be supposed to have meant the same thing by a sphere of that kind as by any of the three which he mentioned just before. Each of those three was a combination of the sphere of nature in a certain relation with the sphere of Mazzaroth: this fourth could be nothing of that kind. In defect of an artificial standard of reference, like the sphere of Mazzaroth, the natural sphere can be referred to nothing but itself: and when the sphere ceased to be revised from time to time, in conformity to the original theory of its relation to the sphere of Mazzaroth; there ceased to be such an artificial standard of reference for it. From that time forward it must be referred to itself. It has necessarily a first term of its own; from which every other term in it takes its rise, and on which all the rest depend. This is the first point of Aries: the ingress of the sun into the first sign of spring: the mean or the true vernal equinox. In this sense the natural sphere must always bear date *in primis partibus*.

To resume however the prosecution of our proper subject,

<sup>i</sup> Uranologium, 2. D. cap. i.

p. 20. A-B: i. 8. A.

<sup>k</sup> Ibid. 3. A-C. cap. i. Cf. cap. iv.

<sup>l</sup> Ad Phænomena, 511-514.



which is the third type of the sphere in strict conformity to the principles and administration of the Phœnix cycle. No characteristic of the sphere of antiquity in point of fact can be considered to be better known, or more likely to be generally admitted, than this of its having been laid down, some time or other, and having borne date in some sense or other, *in octavis partibus*; though what was always intended by that characteristic distinction has never yet been properly understood. The Julian correction has made the learned in general, and chronologers and astronomers in particular, familiar with the fact of the distinction: for it is notorious that this distinction was one of the characteristics of the Julian correction, and that the cardinal points in the sphere of Cæsar were laid down *in octavis partibus*. We reserve the full illustration of this peculiarity for the Roman calendar, to which it properly belongs; but we shall beg leave to produce one or two testimonies to the fact itself even at present.

i. *Cardo temporum quadripartita anni distinctione constat, per incrementa lucis. augetur hæc a bruma, et æquatur noctibus verno æquinoctio ... horæ nunc in omni accessione æquinoctiales non cujuscunque diei significantur: omnesque eæ differentiæ fiunt in octavis partibus signorum. bruma Capricorni, A. D. viii kalendas Januarii fere: æquinoctium vernum Arietis: solstitium Cancræ: alterumque æquinoctium Libræ<sup>m</sup>.*

ii. *Is namque (sol) cum Arietis signum init, et partem octavam pervagatur, perficit æquinoctium vernum... deinde e Geminis cum init ad Cancrum, qui brevissimum tenet cœli spatium, cum pervenit in partem octavam perficit solstitiale tempus... in Libræ parte octava perficit æquinoctium autumnale... cum autem incipit a feminibus Sagittarii quæ pars est attributa Capricorno ad partem octavam brevissimum cœli percurrit spatium: ex eo a brevitate diurna bruma et dies brumales appellantur<sup>n</sup>.*

iii. *Præterea cum sol per hos circulos currens iter annum conficere videatur et ab omnium signorum octava parte, ut posterius dicemus, incipiat exoriri et ad aliud signum transeat;*

<sup>m</sup> Pliny, H. N. xviii. 59.

<sup>n</sup> Vitruvius, De Architectura, lib. ix.  
cap. ii. p. 269. Cf. cap. vi. ad fin.

p. 285. *Architecturæ Compendium*,  
xxix. Also, Vegetius, De Re Militari,  
v. 9.

neque ulla alia parte signi utatur; recte ipsi quinque circuli dividuntur in partes octo<sup>o</sup>.

iv. Cælum circulis quinque distinguitur, quorum duo extremi maxime frigidi... his utrimque proximi duo paralleli vocantur, æque ut ita dixerim distantes iidem tropici iidem solstitiales: alter hybernus, per quem sol transmittens octavam partem Capricorni solstitium hybernum facit: alter æstivus, per quem sol octava parte Canceri solstitium æstivum facit. medius est æquinocialis, qui octava parte Arietis æquinoctium vernum octava parte Libræ autumnale constituit P.

v. Is cum per gelidas hyemes summotus in austros  
Fulget in octava Capricorni parte biformis,  
Tunc angusta dies vernaes fertur in horas  
Dimidium atque novem q.

vi. Αἱ γὰρ θερивαὶ τροπαὶ ἐν τῷ καρκίνῳ γίνονται, ἡ μοῖραν αὐτοῦ τοῦ ἡλίου ἐπέχοντος ... μετὰ οὖν τὴν ἡ μοῖραν τοῦ καρκίνου ταπεινότερος ὁ ἥλιος πρὸς ἀναλογίαν ἄρχεται γίνεσθαι ... μαρτυρεῖ δὲ τῷ λόγῳ τούτῳ ἡ διὰ τῶν ὥρολογίων ἐνεργεία. ἡ γὰρ σκιὰ τοῦ γνωμόνος μετὰ τὸ παραλλάξαι τὸν ἥλιον τὴν ὀγδόην μοῖραν τοῦ καρκίνου οὐκέτι ἐπεκτείνεται ἀλλ' ἀνασπᾶται<sup>r</sup>—Διὰ τοῦτο καὶ ὁ ἥλιος αἰγοκέρωτος ἐπέχων μοῖραν ἡ' θ' μὲν ὥρων τὴν ἡμέραν ποιεῖ ιε' δὲ τὴν νύκτα<sup>s</sup>.

These testimonies, being all later than the Julian correction, are competent to ascertain the actual matter of fact, which held good of that correction; that, for some reason or other and in some sense or other, the sphere of Cæsar was laid down *in octavis partibus*. We can now too understand what this must always have meant; viz. the combination of a fixed and a moveable sphere, the first degrees of the latter of which were assumed in the eighth of the former. This moveable sphere was no doubt the tropical sphere: the immoveable, to which it was adapted, was some such sphere as the sphere of Mazzaroth, though not that sphere itself: for

<sup>o</sup> Hyginus, Poet. Astron. lib. iv. cap. ii. De Tropico Canceri. Cf. v. iii.

<sup>p</sup> Incertus Auctor, apud Censorinum, cap. 2. Cf. p. 152. end of the chapter.

<sup>q</sup> Manilius, iii. 256.

<sup>r</sup> Scholia ad Aratum, Phœn. 499. Cf. Cod. Mosq. in loc.

<sup>s</sup> Ibid. ad 509. Cod. Mosq. in loc. Conf. Martianus Capella, viii. 277. De Coluris: 278, De Solstitiali: 279. De Æquinociali: 279, De Brumali: 279, 280, De Coluris: 280, De Tropico.

in the time of Cæsar the first degrees of the tropical sphere were not falling in the eighth degrees of the sphere of Mazzaroth, but in the first. It might be a modification however even of the sphere of Mazzaroth, and ultimately derivable from that: of which more will be said by and by. The case of the Julian correction, and of the sphere of Cæsar, is demonstrative at least that the distinction of a tropical or moveable sphere, laid down in the eighth degrees of a fixed and immoveable one, having once become matter of fact at the epoch of the third Phœnix period, never ceased to be recognised down to the date of the Julian correction, and long after too: for some of the preceding testimonies are many centuries later than the Julian correction.

Sane sciendum est, observes Servius<sup>t</sup>, omnes astrologos pro ratione climatum dissentire in ortu siderum. Sed ipsa dissensio ultra septem dies non procedit: septem enim etiam sunt ipsa climata. hinc est, quod solem ad unumquodque signum alii quintodecimo kalend. die dicunt venire alii quartodecimo: alii infra usque ad octavum: nec quisquam procedit ulterius. The astronomy of this passage is doubtless bad, if the *ortus siderum* be understood of the stars, and not of the signs merely, and of the ingresses of the sun into the signs. But there was a foundation, in the matter of fact, for the distinction which also appears in it, relating to those ingresses; which matter of fact was the actual designation of the moveable in terms of the immoveable sphere, first in the 15th degrees, then in the 12th, and lastly in the 8th. For that to suppose the sun to enter a sign viii kal. and xv kal. respectively is to suppose it to do so seven days in one of these instances earlier or later than in the other, is evident: and viii kal. being understood of seven days before the true point of the ingress, xv kal. must be understood of fourteen days before it: and as the former would describe a tropical sphere laid down in the 8th degrees of a sphere like that of Mazzaroth, so would the latter one laid down in the 15th degrees. Between one sphere so laid down in the 15th degrees, and another laid down in the 8th, we might suppose as many spheres, analogously laid down, as there are degrees: that is, as Servius implies, including either of these two them-

<sup>t</sup> Ad Georgica, i. 205.

selves, seven in all. And such it appears had been made, (or at least imagined, if not made,) as equally real in theory, and equally possible in effect and practice; but not more, it seems, than these seven: so that it may be taken for granted, on the strength of this testimony of Servius, that while no principle was better known, more implicitly received, or more generally acted on, than this of combining a moveable and an immoveable sphere in some manner or other, the principle in fact was not of indefinite application. Nor had it ever been known to be applied, except between these extremes of the 8th and the 15th degrees of the immoveable sphere. All the known combinations of the moveable with the immoveable sphere, upon such a principle as this, were graduated from the 8th to the 15th degree of the latter; none from any higher term than the 15th, and none from any lower than the 8th.

It is certain that in Hipparchus' time the cardinal points of the moveable sphere were very nearly coincident with the first degrees of the immoveable; and equally so that he dated the ingresses himself all round the tropical sphere in the first degrees; which in his time would be nearly the same thing both as the first degrees of the tropical and as the first of that of Mazzaroth. Columella observes on one occasion<sup>u</sup>: *Nec me fallit Hipparchi ratio, quæ docet solstitia et æquinoctia non octavis sed primis partibus signorum confici. verum in hac ruris disciplina sequor nunc Eudoxi et Metonis antiquorumque Fastus astrologorum, qui sunt aptati publicis sacrificiis: quia et notior est ista vetus agricolis concepta opinio: nec tamen Hipparchi subtilitas pinguioribus ut aiunt rusticorum litteris necessaria est.* This popular notion of the incidence of the tropical points on the 8th degrees no doubt existed in Hipparchus' time. It could not fail to do so; if it first came into vogue along with the third type of the sphere itself, actually laid down *in octavis partibus*; and at that time truly and correctly so: but as never after revised and redressed on any similar principle, in Hipparchus' time seven or eight days in excess of the truth. The mistake which Hipparchus desired to set right, no doubt, was this popular error; which still attached

<sup>u</sup> De Re Rustica, lib. ix. cap. xiv. § 12.



the cardinal points to the eighth degrees of an obsolete sphere. He never could have supposed it impossible for the cardinal points, under any circumstances, to coincide with the eighth degrees: the first degrees of the sphere of nature with the eighth of a sphere of a totally different kind. But though this might have been the case once and *de facto* before his time, it had long ceased to be the case in his time.

With respect to the allusion to Eudoxus and Meton, in contradistinction to Hipparchus, which occurs in the same passage: Quare mirari satis non possum, says Scaliger <sup>w</sup>, cur Columella dixerit se auctore Metone solstitium in octava parte Cancri, sicut alia κέντρα in octavis partibus signorum suorum statuere, cum res ipsa eum satis refellat. This learned man must have understood Columella to mean that according to Meton the *true* cardinal points were dated *in octavis partibus* of their respective signs; which certainly, to judge from so much of the calendar of Meton itself as is extant in Geminus, would be contrary to the matter of fact. But we do not possess the original Parapegma of Meton. We cannot say whether that too did not combine a moveable and an immoveable sphere; the former laid down in a certain relation to the latter. There is no inconsistency between a sphere's bearing date *in primis partibus* of its own graduation, and yet *in octavis partibus* of that of another. And this principle of the combination of the tropical sphere with the sphere of Mazzaroth, or with some fixed sphere analogous to that, was so universal in Meton's time, that we can scarcely suppose he alone would pay no regard to it. It should be remembered that the date of his own correction, B. C. 432, was nearly 100 years earlier than the close of the fourth Phœnix period; for the whole of which the tropical points, wheresoever they might be truly falling even in the sphere of Mazzaroth itself, would still nominally bear date, as at first, *in octavis partibus*. It is far from improbable then that Columella had good grounds for what he observes in relation to the rule of Meton: and that the cardinal points were actually marked in his Parapegma, agreeably to the Phœnix rule, in the eighth degrees, as well as in the first agreeably to the

truth. As to Eudoxus, we shall see, we trust, hereafter that the cardinal points in *his* sphere were actually so conformed in a very marked and significant manner.

Scaliger appears to have been of opinion that this peculiar division of the sphere in *octavis partibus* was originated among the Greeks; and that its first author was Cleostratus of Tenedos: *Primus omnium Græcorum eas octavas partes Cleostratus Tenedius in suo parapegmate prodidit. quod ex Plinio et Hygino suspicari potius quam colligere licet*\*. This opinion, after what we have shewn of the nature of the Phoenix rule from the first, and of the different types of the sphere, each of them synchronous with a distinct Phoenix period, laid down in strict conformity to that rule, from the first in *xv<sup>s</sup> partibus* to the third in *viii<sup>s</sup> partibus*; no one can hesitate to say must have been a mistake. Cleostratus of Tenedos is mentioned by Scylax of Caryanda, as alive and observing at Tenedos, at the very time when he was writing his own Periplus<sup>y</sup>: and he himself is commonly supposed to be the same Scylax who is mentioned by Herodotus<sup>z</sup> as a contemporary of Darius Hystaspis\*.

\* That Cleostratus was the author of an *ἀστρολογία* appears from Athenæus, vii. 7. We are told too by Theophrastus that he made use of Mount Ida as his observatory, from which to watch the moon and the heavens: vi. De Signis, cap. i. § 4.

The passage of Pliny referred to by Scaliger is the following, in which he is speaking of the ecliptic. *Oblivitatem ejus intellexisse, hoc est rerum fores aperuisse, Anaximander Milesius traditur primus, Olympiade lviii. signa deinde in eo Cleostratus; et prima Arietis et Sagittarii: sphaeram ipsam ante multo Atlas: H. N. ii. 6. Cf. Plutarch, De Placitis Philos. ii. 12.* The meaning of this statement probably is that Cleostratus' observations, for some reason or other, were directed to these two signs, Aries and Sagittarius, in particular: but why, does not appear, and it seems to us useless to conjecture; unless it was because Aries was recognised even by him as the first sign, and yet there was something connected with Sagittarius too, to make that interesting to a Grecian astronomer also. Possibly it might be its connection with Chiron, whom the Greeks certainly considered to be the centaur of the sphere; and whose own connection with the sphere, and in the shape of the centaur too, might have something to do with the sign of Sagittarius in particular. Was there, after all, such a thing among the Greeks as the sphere of Chiron? and did that bear date from Sagittarius?

\* De Emendatione, iv. 267. A.

<sup>y</sup> Geographi Minores, i. Periplus, p. 35. Τρεῖς καὶ νῆσος κατὰ ταῦτα κεῖται

Τένεδος καὶ λιμὴν, ὅθεν Κλεόστρατος ὁ ἀστρολόγος ἐστὶ.

<sup>z</sup> iv. 44.

SECTION II.—*On the figuration of the Zῳδία upon the sphere at the epoch of the third Phœnix period.*

The most important and most interesting fact connected with the epoch of the third Phœnix period, and of the third type of the sphere, is one which will both continue the history of the names imposed on the signs, and complete and conclude it also: viz. That at the epoch of this third period and third type, the ζῳδία, properly so called, the figured representations of men or of animals, denoted by those names, were actually introduced into the sphere and laid down in their proper places therein; that is, in and upon the signs, to which the names of such representations had been already given.

The various parts of the process which must have been gone through previously, if it issued out in a result like this at last, have been explained. It has been shewn that certain stars must first have been isolated from the rest, by being enclosed and circumscribed within certain spaces of the zodiac called mansions; in order that men might be taught to regard such parts of the heavens as distinct from the rest, and might be accustomed to look on the stars comprehended within them as peculiar to such spaces. And this was done at the epoch of the first Phœnix period. The next step was to give names to the signs; and so to connect such and such names and such and such ideas with certain parts of the heavens, and with certain stars contained in them, but not with others: and this was done at the epoch of the second period. The next and the only remaining part of the process was to delineate a figure, such as was implied by the name and by the idea attached to the name of the sign, within the limits of the sign itself; and thereby to make the stars also, comprehended in the sign, the asterism of a zodiac; i. e. an animal figure: a part of the process, which after what has been shewn it may be fairly assumed would be the easiest of all at last; but which, unless the other two parts of the process preparatory to it had been gone through previously, each in its turn, must have been the most difficult. And this last and concluding part of a very curious and interesting proceeding, which had been going on from

first to last for 1000 years, we believe to have been completed, at the epoch of the third Phœnix period, and among and by the same people, the Egyptians in general, who had already gone through both the former.

If this opinion is rightly founded, the constellations, which pass by the same names as the signs, and always have done so, Aries, Taurus, Gemini, and the rest, came into being at this time; in the shape of those forms at least, and under those names. It is not our intention to enter on the consideration of these names as applied to the constellations. Nor indeed is it necessary; for it does not appear that any change was made in the names when they were transferred to the constellations. It was the same name and the same idea in each instance; but common from that time forward both to the constellation and to the sign. Nor shall we enter upon the question, what stars in particular must have gone to the constellations in each of these instances, so figured and so denominated; which would involve too many astronomical details. All that we shall do will be to point out, if possible, the general principle on which these different asterisms appear to have been laid down on the sphere at last; the knowledge of which is necessary to recognise and distinguish them ever after, and to restore or recover them correctly at present. And we shall be content to illustrate this principle itself only in one instance, that to which it would first be applied; the constellation or zodiac of Aries or the Ram.

SECTION III.—*On the particular constellation of the Ram; and the principle on which it appears to have been laid down.*

The first of the signs is Aries or the Ram; and the first of the zodia is Aries or the Ram also. With regard to the stars which compose this constellation, to judge from the catalogues of Ptolemy<sup>a</sup>, and of Ulugh Beigh<sup>b</sup>, and from the traditionary mode of delineating the Ram on the sphere; the first stars supposed to make a part of it must have been the two on the fore or western horn, known, at present, by

<sup>a</sup> Ptolemy, Comp. lib. vii. p. 50 : Delambre, *Astronomie Ancienne*, ii. 271.

<sup>b</sup> Hyde, *Syntagma*, Ulugh Beighi *Tabulæ*, 58-60.



the name of  $\gamma$  and  $\beta$  Arietis ; each of which is a star of the third magnitude in Ptolemy<sup>c</sup>: the last must have been the four, which stand altogether in a line on the ὀρροπύγιον or tail ; the last or most easternly of these being the star  $2\tau$  Arietis. And the number of degrees of the sphere between  $\gamma$  Arietis and  $2\tau$  Arietis, the first and the last stars of the constellation, being 20 or 21 ; this must have been the extent or magnitude of the constellated figure itself, as laid down on the zodiac in the first instance ; viz. 20 or 21 degrees.

At the epoch of the first Phœnix period, B. C. 1847, the most easternly of these stars,  $2\tau$  Arietis, was standing on the vernal colure ; that is, in  $0^{\circ} 0' 0''$  : and the sun was in conjunction with it at that time, as we have seen, for the meridian of Heliopolis, on April 8 at mean noon. At this time (the epoch of the third Phœnix period, B. C. 847) its mean longitude was  $13^{\circ} 54' 29''.541$  : or, as we may assume it, without any material error,  $14^{\circ}$ . Consequently the mean longitude of  $\gamma$  Arietis was as nearly as possible  $14^{\circ}-21^{\circ}$  ; that is,  $353^{\circ}$ .

Now the proportion of the tropical sphere to the sphere of Mazzaroth at this time being such that the first degree of the former was falling in the eighth of the latter ; it is manifest that if the tropical sphere, at this time, was bearing date in  $0^{\circ} 0' 0''$  or  $360^{\circ}$ , the sphere of Mazzaroth must have been bearing date in  $360^{\circ}-7^{\circ}$  or  $353^{\circ}$ . It follows that, if  $\gamma$  Arietis at the same point of time was standing in mean longitude  $353^{\circ}$ , it must have been standing in the first degree of the sphere of Mazzaroth ; in the first degree at least of the Icthyon of Mazzaroth, in the eighth degree of which the first of the tropical Krion was falling at this time.

We may very well suppose that this coincidence would not be overlooked by the Egyptians ; and therefore that, as they could not have laid down the first of these stars,  $\gamma$  Arietis, and the last  $2\tau$  Arietis, which measure between them the proper extent of the zodiac of the Ram on the sphere, until the time when the former, by the effect of precession, had been brought into  $353^{\circ}$  of the ecliptic ; so, in the actual business of the delineation of this figure on the sign so

<sup>c</sup> Magna Comp. lib. vii. opp. ii. p. 50 : Delambre, *Astronomie Ancienne*, ii. 271.

called, they could not have confined themselves to the limits of the tropical Aries, but must have purposely begun the delineation seven degrees before it, in the first of the Ichthyon of Mazzaroth; in the same sign of the sphere of Mazzaroth in the eighth degree of which the first of the Aries of the tropical sphere was actually falling at the time. We must infer therefore that, in this business of laying down the constellated figures on the sphere at last, they paid as much regard to the sphere of Mazzaroth as to the tropical sphere. And as the signs of the former all round the sphere were now beginning just seven degrees complete before the first degrees in the latter; it is much more probable that the first star of every constellation would be assumed seven degrees before the beginning of the tropical sign, called by the same name, than in the first degree of that sign itself: at least as far as it was practicable, and it could be so assumed without prejudice to the actual position of the star at the time. This is seen to have been the case in the first instance of all, that of the first star of the first constellation, Aries; and the analogy of that first case must do much to indicate the rule which would naturally be followed in every other of the same kind. And thus, in this business of reducing the constellated figures at last to the sphere, it is evident that the standard of reference throughout was the sphere of Mazzaroth, and not the tropical; as it had been all along before.

The mean longitude of  $2\tau$  Arietis, A. D. 1802, according to our Tables of the lunar mansions, Type iii, is seen to be  $50^{\circ} 44' 13''\cdot7$ ; and consequently that of  $\gamma$  Arietis, (21 degrees less than that)  $29^{\circ} 44' 13''\cdot7$ . It follows that the first star of Aries, A. D. 1802, was to be found in mean longitude  $29^{\circ}$  or  $30^{\circ}$ —which B. C. 847 had stood in mean longitude  $353^{\circ}$ . Assuming this datum, and proceeding on the hypothesis that the first star of every other constellation, B. C. 847, was laid down, wheresoever it was practicable, seven degrees before the beginning of its proper synonymous sign; an astronomer would perhaps be most likely to recover each of these stars at present at the distance of 30 degrees from  $\gamma$  Arietis successively all round the sphere.

It does not appear that any particular star was standing on the vernal colure B. C. 847. The bright star over the left

eye of the Ram ( $\alpha$  Arietis) however was only one or two degrees west of it. Hipparchus, according to Delambre, described and designated the position of this star, as if ἐπὶ τοῦ ῥύγχους (on the snout or nose) of the Ram<sup>c</sup>; though it is always laid down at present over the left eye.\*

SECTION IV.—Of the two astrologers of antiquity, Petosiris and Nekepsos.

Among the astrologers of ancient times, none appear to have been considered greater adepts in their proper science,

\* It may be proper to notice here one or two extraordinary statements, which are found on record, relating to certain observations of the Egyptian Hermes of very great antiquity.

One of these is an observation of Aldebaran, or the Bull's eye, in  $25^{\circ} 17'$  of Pisces. The authority for this is the same Dr. Edward Bernard to whom we have already alluded; and he appears to have met with it in some of the Arabic MSS. at Oxford, with which he was conversant. See Bailly, Histoire de l'Astronomie Ancienne; Éclaircissements, Liv. iv. § iv. p. 356: Traité de l'Astronomie Indienne, ch. v. § xxxviii. p. 138: ch. ix. § xxix. p. 255.

It is easy to explain this pretended observation. The longitude of Aldebaran on the globe is  $12^{\circ}$  or  $13^{\circ}$  less than that of  $\beta\eta\tau\alpha$  Tauri. Consequently when  $\beta\eta\tau\alpha$  Tauri was standing in longitude  $30^{\circ}$  Aldebaran might be supposed to be standing in longitude  $18^{\circ}$ : and that was the case B. C. 1847 at the epoch of the Phoenix cycles. This observation then was purposely carried back to the epoch of the Phoenix cycles, and of the first type of the sphere.

In the last or third type of the sphere however, the tropical points being laid down in *octavis partibus* of the sphere of Mazzaroth,  $25^{\circ} 17'$  of Pisces in the sphere of Mazzaroth corresponded to  $18^{\circ} 17'$  in the tropical sphere; and if this type of the sphere had been in existence B. C. 1847, that would have been the longitude of Aldebaran, at that time:  $18^{\circ} 17'$  of the tropical Krión,  $25^{\circ} 17'$  of the Ichthyon of Mazzaroth. It was as easy to carry back this third type to B. C. 1847, as a pretended observation of Hermes. And that is no doubt the true explanation of this observation. The type of the sphere to which it was adapted was true *de facto* of B. C. 847; and, on the principle of the *reditus retro*, might be assumed to be so of B. C. 1847. The longitude assigned in the observation was true or

<sup>c</sup> Cf. Delambre, Astronomie Ancienne, i. 116: Ptolemy, Opp. ii: Magna Comp. vii. i. 6: vii. p. 50. Ptolemy's words, in describing this star, are ὁ ὕπερ τὴν κεφαλὴν ὅν Ἰππάρχος ἐπὶ τοῦ τραχήλου (τίθῃσι). We apprehend that Delambre made a slight mistake in con-

struing ἐπὶ τοῦ τραχήλου with the ellipsis of τοῦ ῥύγχους. The head of the Ram is bent inwards in such a manner, that a star over its left eye might just as well be described as over its neck.

none were so oracular, and none by general consent were entitled to such deference and respect, as two, of the names of Petosiris and Nekepsu respectively. Both these names bespeak an Egyptian origin; especially the former, which is compounded in part with that of Osiris, and therefore implies that whosoever he was, to whom this name was given,

nearly so *de facto* of the epoch of B. C. 1847\*. And thus the two things were accommodated to each other; a real longitude, B. C. 1847, to a real sphere, B. C. 847.

The other observations also attributed to Hermes, and on the same authority, are one of the bright star of *Lyra*, in the 24° of Sagittarius, and one of *Cor Hydræ*, in the 7° of Leo: see Bailly, *Astronomie Indienne*, Discours Préliminaire, xxxi—xxxiii. *Astronomie Indienne*, chap. v. §. xxxvii. 136—138. *Astronomie Mod.* i. *Éclaircissemens*, Liv. v. §. xii. 587.

Ptolemy, as Bailly observes, found the former of these stars, in his own time, in 17° 20' of Sagittarius, and the latter in 0° 0' of Leo. Now 17° 20' of the Tropical Sagittarius of type iii of the sphere was just the same thing as 24° 20' of the Sagittarius of Mazzaroth; and 0° 0' of the Tropical Leo, as 7° 0' of the Leo of Mazzaroth. It is evident therefore that these two pretended observations of Hermes were not in reality older than the time of Ptolemy; and yet were taken directly from the relation of the tropical sphere of type iii to the sphere of Mazzaroth. Those, who adopted the hypothesis of the alternate recession and advance of the cardinal points within the limits of these 8 degrees (of which more hereafter), might easily carry back an observation even of the time of Ptolemy, in such a sphere as that, to the supposed time of Hermes, contemporary with the origin of the sphere itself, B. C. 1847.

\* B. C. 1847 to A. D. 1750 = 3596 years.

*Table of mean precession in longitude.*

			°	'	"	
	3000 =	41	43	28.623		
	500 =	6	57	14.771		
	90 =	1	15	6.259		
	6 =		5	0.417		
<hr/>						
Mean V. E. A. D. 1750 ..	3596 =	50	0	50.070		
Subtract ..	80 d. =			10.967		
<hr/>						
Jan. 1 A. D. 1750. }						
= Dec. 21 A. D. 1749. }	.. ..	50	0	39.103		
<hr/>						
Longitude of Aldebaran, Jan. 1 A. D. 1750		66	17	55	(Meyer and Maskelyne.)	
Subtract ..		50	0	39		
<hr/>						
Longitude Dec. 21 B. C. 1848				16	17	16



he could not have been older than the Sothiacal period. Nekepso is often represented as one of the kings of Egypt; and in the xxvith dynasty, according to the monuments and to Manetho, (a dynasty of *Saites*,) there is a king of the name of Nechepsos, the second on the list; whose reign Böckh dates B. C. 672, though that was in reality about the first year of Psammetichus, as we have seen<sup>d</sup>.

Καὶ τὸν Κυλλάστῳ φθέγγου καὶ τὸν Πετόσιριν:

which shews that Petosiris was known by name to Aristophanes<sup>e</sup>. *Ἀσχυνθεὶς Πετόσιριν ἀπήγγατο*, says Lucian<sup>f</sup> of an astrologer, whose calculation of his own horoscope had been falsified by the event.

*Ægra licet jaceat, capiendo nulla videtur*

*Aprior hora cibo, nisi quam dederit Petosiris*<sup>g</sup>.

Speaking of comets, Servius observes<sup>h</sup>, *Quorum plenas vel pleniores differentias vel in Necepso vel Petosiri si quem delectaverit quærat*. And Pliny, in like manner, refers to them both for the distances of the sun, and moon, and Saturn<sup>i</sup>.

*Quique magos docuit mysteria vana Necepsus,*

*Et qui regnavit sine nomine mox Sesoösis*<sup>k</sup>.

They are however quoted most frequently and in the most laudatory terms by Firmicus; whose work, *De Astrologia*, still extant, seems to have been little more than a compilation from these two, or others, whom he styles the Egyptians and the Babylonians generally, or Abraham, Critodemus, Orpheus, &c. in particular.

Ausus sum etiam ipse aliquid . . . proferre, ut promitterem me tibi editurum quicquid Ægyptii veteres sapientes ac divini viri, Babylonique prudentes, de vi stellarum ac potestatibus divinæ nobis doctrinæ magisterio tradiderunt<sup>l</sup>—Unde nos omnia, quæ de ista arte Ægyptii Babylonique dixerunt, docili sermonis institutione transtulimus<sup>m</sup>—Omnia enim quæ Æsculapio Hermes Enichnusque tradiderunt, quæ Petosiris

<sup>d</sup> Diss. xiii. ch. iv. sect. i.

<sup>e</sup> Apud Athenæum, iii. 81: Cf. Dindorf. Fragm. p. 141. *Δαναΐδες*, 253.

<sup>f</sup> Anthologia, iii. 38: Luciani xlvi.

<sup>g</sup> Juvenal, vi. 579.

<sup>h</sup> Ad Æneid. x. 272.

<sup>i</sup> H. N. ii. 21. p. 269: Cf. Bailly *Astronomie Ancienne*, Livre vi. §. xiii.

p. 169.

<sup>k</sup> Ausonius, Epistolæ, xix. 409. l. 20. Paulino: Cf. Tertullian, iv. 329: *De Anima*, 56.

<sup>l</sup> Præfatio, p. 2. (Editionis Basileæ, fol. 1551. 41.)

<sup>m</sup> Lib. ii. Præf. p. 15.

explicavit et Necepsō, quæ Abraham, Orpheus, et Critodemus ediderunt . . . perlecta pariter atque collecta . . . in his perscripsimus libris<sup>n</sup>—*De Decanis*: Sic et Necepsō, Ægypti justissimus imperator, optimus quoque astronomus, per ipsos decanos omnia vitia valetudinesque collegit<sup>o</sup>—Sed magnus ille Petosiris hanc partem leviter attigit; non quod etiam eam nesciret, qui jam ad omnia divinitatis secreta accesserat, sed eam plenius docere noluit, ne immortalem operis sui disciplinam in posteros relinqueret<sup>p</sup>—Neque enim divini illi viri et sanctissimæ religionis antistites, Petosiris et Necepsos, (quorum alter imperii gubernacula tenuit,) . . . id quod nos edituri sumus invenire potuerunt<sup>q</sup>—Primum itaque de parte nonagesima, quæ a Græcis ἐνενηκοντάμερος dicitur, disputabo . . . nam et istum tractatum Petosiris (ut mihi videtur) invidio voluit livore celare<sup>r</sup>.

They are also repeatedly referred to by Vettius Valens, another astrological writer, whose work entitled Ἀνθολογία or Florida has never been published entire; Petosiris, under that name alone, Necepsō sometimes by that name, sometimes simply as ὁ βασιλεὺς: and from his references to this latter we learn that he was the author of 13 books at least. We have gleaned the following allusions to both, and to other writers of the same stamp, from a cursory perusal of his Anthology in MS.

Ἀκριβέστερον δὲ βουλόμενος τὸν περὶ εὐδαιμονίας τόπων (τόπων) βεβαιῶσαι, ἐπάνειμι εἰ (ἐπὶ) τὸν κλήρον τῆς τύχης, ἀναγκαίότατον καὶ δυναστικὸν τόπον, καθὼς καὶ ὁ βασιλεὺς ἐναρχόμενος ἐν τῇ γ' βίβλῳ μυστικῶς ἐδήλωσε κ', τ. λ. ὁμοίως δὲ καὶ ὁ Πετόσιρις ἐν τοῖς ὅροις ἐδήλωσε τὸν τόπον<sup>s</sup>—Τὸν περὶ ἀποδημίας τόπον δύσληπτον ὄντα οὔτε Πετόσιρις οὔτε ὁ γνώριμος βασιλεὺς ἐν τοῖς ὑπομνήμασιν ἐαντῶν ἐξεῖπαν . . . ὁ δὲ θαυμασιώτατος Ἀβραμὸς ἐν τοῖς βιβλίοις αὐτοῦ<sup>t</sup>—Ἔστι δὲ καὶ ἕτερος τρόπος ἀριθμὸς ἀρμόζων εἰς τὸν περὶ ζωῆς χρόνον . . . ὃν καὶ ὁ βασιλεὺς (supple καὶ) Πετόσιρις ἐδήλωσε μυστικῶς<sup>u</sup>—Ὑποδείξομεν δὲ

<sup>n</sup> iv. 84. Of Abram, cf. iv. cap. x. p. 98, from which it appears he was a writer on the Sphæra Barbarica, by which Firmicus means the Chaldaic: see lib. viii. cap. xvii. p. 223.

<sup>o</sup> iv. cap. xvi. p. 107.

<sup>p</sup> Ibid. 109.

<sup>q</sup> viii. cap. v. p. 216.

<sup>r</sup> Ibid. i. p. 212.

<sup>s</sup> Lib. ii. p. 6. obn. Περὶ κλήρου τύχης καὶ οἰκοδεσπότου.

<sup>t</sup> Ibid. p. 23. Περὶ ἀποδημίας, ἐκ τῶν Ἑρμίσπου.

<sup>u</sup> Ibid. iii. p. 55. Περὶ ἀριθμοῦ κλήρου.

καθὼς καὶ ὁ βασιλεὺς ἐσήμανε περὶ κλιμακτῆρος<sup>w</sup>, κ', τ. λ.—'Εν γὰρ τῇ γ' βίβλῳ ὁ βασιλεὺς μετὰ τὸ προοίμιον καὶ τὰς τῶν ζώων (ζώων) διατάξεις κ', τ. λ.<sup>x</sup>—Καθὼς καὶ ὁ Νεκεψὼ ἐμαρτύρησε λέγων, κ', τ. λ.<sup>y</sup>—Καὶ ὁ συγγραφεὺς ἔφη κ', τ. λ.<sup>z</sup>—Φησὶν οὖν ὁ βασιλεὺς κ', τ. λ.<sup>a</sup>—Οἱ οὖν ἐντυγχάνοντες ταῖς ὑφ' ἡμῶν συντεταγμέναις βίβλοις, πάσας αἰρέσεις διελεγχούσαις, μὴ λεγέτωσαν· αὕτη μὲν ἐστὶ τοῦ βασιλέως· ἑτέρα δὲ Πετοσίρεως· ἄλλη δὲ Κριτοδῆμον· καὶ τῶν λοιπῶν<sup>b</sup>—'Ὅσα μὲν ὁ θειότατος βασιλεὺς εἴρηκε Νεκεψὼ, ὁ τὴν ἀρχὴν ποιησάμενος τῆς γ' βίβλου, ἐν ταῖς προσυντεταγμέναις ὑφ' ἡμῶν καὶ ἄλλων πόνοις (corrigé βίβλοις) κατημαξενμένα ἐστὶ κ', τ. λ.<sup>c</sup>—'Ο δὲ σοφώτατος Κριτοδῆμος ἐν τῇ ἐπιγραφομένῃ αὐτοῦ 'Ορασις, συνεκτικωτάτῃ πολλῶν μαρτυριῶν, ἀρχὴν τοιαύτην ἐποιήσατο... ἄλλοι τε καὶ ὁ Τίμαιος καὶ Ἀσκληπιὸς καὶ ἕτεροι πλείστοι<sup>d</sup>—Οὐκ ἀσκόπως δὲ ὁ Πετόσιρις<sup>e</sup>—Καθὼς καὶ ὁ βασιλεὺς ἠνέξατο ἀπὸ τῶν σπορίμων θ' παχυμερῶς, ἐγὼ δὲ λεπτομερέστερον τὴν ἀρχὴν ἀπὸ τοῦ Θῶ μ (μὲν οἱ μηνὸς) ποιησάμενος κ', τ. λ.<sup>f</sup>—Λέγουσι δὲ οἱ περὶ Πετόσιριν ἡμέρας ἐν τῇ ζωδίῳ κ', τ. λ.<sup>g</sup>

SECTION V.—*On the doctrine of the alternate regression and progression of the cardinal points of the sphere.*

There is a remarkable passage in the *Πρόχειροι Κανόνες* of Theon, which we must now proceed to lay before our readers.

'Επεὶ δὲ καὶ κατὰ τινὰς δόξας βούλονται οἱ παλαιοὶ τῶν ἀποτελεσματικῶν τὰ τροπικὰ σημεῖα ἀπὸ τινος ἀρχῆς χρόνου εἰς τὰ ἐπόμενα μετακινεῖσθαι μοίρας ἢ καὶ πάλιν τὰς αὐτὰς ὑποστρέφειν· ὅπερ τῷ Πτολεμαίῳ οὐ δοκεῖ... ὁμῶς γε ἐκθησόμεθα τὴν ἐφοδὸν τοῦ περὶ τούτου γινομένου αὐτοῖς ἐπιλογισμοῦ.

Λαμβάνοντες γὰρ τὰ πρὸ τῆς ἀρχῆς Αὐγούστου βασιλείας ἔτη ρκή', (128,) ὥς τότε τῆς μεγίστης μεταβάσεως τῶν ἡ' μοιρῶν

<sup>w</sup> Ibid. 56. Περὶ κλιμακτῆρος. Cf. Firmicus, Lib. iv. cap. xiv. p. 105: Si enim septeni et noveni anni, qui hebdomadici a Græcis atque enneatici appellantur, gravia semper hominibus inducunt pericula, quid annus faciet lxxiii, qui utriusque numeri multiplicatam... perficit summam?

Hac igitur ex causa Androdas (per syncopeν from ἀνδροδάμας) ab Ægyptiis dictus est, quod omnem vitæ substantiam frangat atque debilitet.

<sup>x</sup> Lib. iii. 59. Περὶ κλήρου τύχης.

<sup>y</sup> Ibid. vi. 109. Προοίμιον.

<sup>z</sup> Ibid. vii. 129. Περὶ χρόνων ἐμπράκτων.

<sup>a</sup> Ibid. 130.

<sup>b</sup> Ibid. viii. 142. Ἐκδοσις τῶν προκειμένων β' ὀργάνων.

<sup>c</sup> Ibid. ix. 153. Προοίμιον.

<sup>d</sup> Ibid.

<sup>e</sup> Lib. ix. 155. Περὶ κλήρου τύχης.

<sup>f</sup> Ibid. 175. ad calcem, Περὶ ὥροσκοπικοῦ κ', τ. λ.

<sup>g</sup> Ibid. Περὶ χρόνων ζωῆς.

γενομένης εἰς τὰ ἐπόμενα, καὶ ἀρχὴν λαμβανόντων ὑποστρέφειν καὶ τούτοις προστιθέντες τὰ ἀπὸ τῆς ἀρχῆς τῆς Αὐγούστου βασιλείας ἕως τῆς Διοκλητιανοῦ ἀρχῆς ἔτη τιν' (313) καὶ τὰ ἀναδιδόμενα ἀπὸ Διοκλητιανοῦ· καὶ τῶν συναγομένων τόπον (lege τὸ πᾶν) λαμβάνοντες, ὡς κατὰ π' (80) ἔτη μιᾶς μοίρας αὐτοῦ μετακινουμένων, (lege αὐτοῖς μετακινουμένης·) τὰς γινομένας ἐκ τοῦ μερισμοῦ μοίρας ἀφαιροῦντες ἀπὸ μοιρῶν ἡ', τὰς λοιπὰς ἐκ τῆς τότε μεταβάσεως τῶν τροπικῶν προστίθεσι ταῖς καταλαμβανομέναις διὰ τῶν εἰρημένων ψηφοφοριῶν ἡλίου καὶ σελήνης καὶ τῶν πέντε πλανωμένων ἐποχαῖς<sup>h</sup>.

This passage has not been overlooked in Delambre's history of ancient astronomy<sup>i</sup>: and he has translated it. But he appears to have considered it unworthy of serious notice; and therefore he has speedily dismissed it. No one indeed can read it, and not conclude that it involves either something very absurd, or something very curious but very mysterious. For our part we look upon it in the latter light; and we shall therefore endeavour to explain it, if possible, and to shew in what manner it bears on the subjects which we are discussing at present; and how it is even calculated to confirm our previous conclusions in a remarkable manner.

#### SECTION VI.—On the explanation of the above doctrine.

The phrase εἰς τὰ ἐπόμενα, which occurs in this passage, is opposed to that of εἰς τὰ ἡγούμενα or προηγούμενα: and the former being rendered in Latin by *in consequentia*, and the latter by *in antecedentia*; astronomers cannot fail to recognise in each of these phrases a mode of speaking with which they have long been familiar. What Theon himself understood by εἰς τὰ ἐπόμενα is easy to be collected from his preceding observations<sup>k</sup>: viz. a motion along the ecliptic, in the order of the signs; that is, forwards or eastwards, from Aries to Taurus, from Taurus to Gemini, and so on. It might have been expected *a priori* that a motion in this direction would always have been expressed by εἰς τὰ ἡγούμενα; and the contrary one only by εἰς τὰ ἐπόμενα. But, as De-

<sup>h</sup> Ptolemæi Opera, vi. p. 53. Περὶ τροπῆς.

<sup>i</sup> ii. 625, 627.

<sup>k</sup> Lib. cit. p. 28, 29.



lambre justly observes<sup>1</sup>, these phrases were first invented and applied not for the sake of characterizing the motion of the sun in the ecliptic, but the passage of the signs over the meridian. It is well known that Aries rises in the sphere, and comes to the meridian, before Taurus, Taurus before Gemini, and so on: all the signs in short *west* of any assumed point of the sphere before the signs *east* of the same. The name of ἡγούμενα or προηγούμενα was given to those parts of the sphere which took precedence of the rest, and as it were led the way, in these acts of rising and coming to the meridian and setting; and that of ἐπόμενα to those which followed them.

Now this being the meaning of the phrase εἰς τὰ ἐπόμενα, it is manifest that by a μετάβασις, a motion of any kind or change of place, εἰς τὰ ἐπόμενα, nothing can possibly be understood but a motion or change of place in the natural order and sequence of the signs; from Aries to Taurus, from Taurus to Gemini, and so forth, all round the sphere. And such a motion or change of place as this being exactly the effect produced by precession on the apparent places of the stars, or on that of any assumed fixed point of the sphere, referred to the equinoctial point perpetually; it is manifest that by this phrase, and by this mode of speaking of a μετάβασις εἰς τὰ ἐπόμενα, nothing can ultimately be meant but the ordinary phenomenon of the precession.

The phenomenon of the precession in itself, and *a priori*, is one which might be explained in two ways: one, by supposing the cardinal points of the sphere to be absolutely fixed and immoveable, and the stars, by virtue of some proper motion of their own, to recede further and further back from them, in the order of the signs perpetually: the other, by supposing the stars to stand still and to move neither backwards nor forwards, but the cardinal points of the sphere to recede on the ecliptic perpetually, contrary to the order of the signs. It is well known that this latter is the true explanation of the phenomenon; though it is true notwithstanding, and probably was known to the astronomers of antiquity (at least in Egypt) as well as to the modern ones, that the stars themselves are not absolutely stationary in space, but have more or less of what is called *proper*

<sup>1</sup> *Astronomie Ancienne.*

*motion*, or motion of their own, which is liable to produce a real change in their places, totally distinct from the apparent change which is the effect of precession.

The above doctrine indeed does not appear to have been fully explained by Theo. He recognises only one motion, and that *εἰς τὰ ἐπόμενα*; but it is clear, to our apprehension, that it involved a double hypothesis, of a motion *εἰς τὰ ἐπόμενα* of this kind, combined with a motion *εἰς τὰ ἡγούμενα* of the opposite kind; both going on at the same time too, though in different directions and in a different way: and that the subject of each of these motions also was supposed to be the same, and something which in reference to each must be described and designated by the *τροπικὰ σημεῖα* alike. The sphere of Mazzaroth had such points, as well as the sphere of nature: and these being supposed to be the cardinal points in each, and any one of them in either in a given instance to coincide with and to be the same as the corresponding point in the other; it was assumed and inculcated in this doctrine that when the supposed common point of two such spheres, the *τροπικὸν σημεῖον*, or one of the *τροπικὰ σημεῖα* for the time being, in each, began to go forwards in one direction *εἰς τὰ ἐπόμενα*, it began to go backwards in the other direction *εἰς τὰ ἡγούμενα*. Also that this continued to go on, in each direction, until the point in question had receded eight degrees *εἰς τὰ ἐπόμενα*, and eight degrees *εἰς τὰ ἡγούμενα*: but that then it ceased, and began to be reversed in each instance; the same point retracing its steps in one sphere eight degrees *εἰς τὰ ἐπόμενα*, and in the other eight degrees *εἰς τὰ ἡγούμενα*, until it again met and coincided with the other in the same point of each sphere from which it had set out before. It is implied also in the above doctrine that this phenomenon was to be supposed of perpetual recurrence; constantly repeated and in the same way; and that it was no sooner completed in one instance but it must begin again.

SECTION VII.—*On the date of the introduction of the doctrine in question.*

The date of the introduction of this peculiar theory may be determined by various tests and criteria, all leading to the same result.

First: The distinction of a double sphere, and of a point

common to both, liable to recede in the one and to go forward in the other, to the same extent and for the same length of time, perpetually, being necessarily implied in the doctrine itself; it could not be older than the first origin of such a distinction; that is, than the first idea of combining a moveable sphere, like the natural or tropical one, with a fixed and immoveable one, like the sphere of Mazzaroth.

Secondly: The cardinal or principal point common to both these spheres being supposed to be capable of changing its place in each to the extent of eight degrees, but neither more nor less than eight; the doctrine relating to this point never could have come into vogue before the point of time when the cardinal points in the tropical sphere were falling in the eighth degrees of the sphere of Mazzaroth; nor after the time when they ceased to do so: that is, it could neither be older than the epoch of the third Phoenix period, nor yet much later.

Thirdly: Assuming that the common point in both spheres, liable to this alternate advance and alternate recession in each, was the true tropical point at the epoch of the third Phoenix period; and that its actual place in the sphere of Mazzaroth at that time was in the eighth degree; it is manifest that, according to this doctrine, it was liable to recede 8—7 degrees on the sphere of Mazzaroth in one direction, and 8+7 on the same sphere in the other; but no further in either direction. It follows that the 1st degree in the sphere of Mazzaroth was a fixed limit, which it might reach, but could not pass, in one direction; and the 15th degree in the same sphere was a similarly fixed limit, which it might attain to, but could not pass beyond, in the other. This change of the place then of the same point common to both spheres must go on perpetually between certain fixed limits in the sphere of Mazzaroth, defined by the 1st the 8th and the 15th degrees of that sphere respectively: the most important of these being the 8th or the middle degree itself; and the change taking place from the 8th to the 1st degree on one side of this middle point, and from the 8th to the 15th on the other, and back again perpetually and at the same time in each instance also. And this being the state of the case implied in the doctrine at last; every one must

see that ultimately it can be resolvable into nothing but the original distinction of the two spheres, the tropical and the sphere of Mazzaroth; the former of which was laid down at first in the fifteenth degree of the latter, and, at the epoch of the third Phoenix period, and as the necessary consequence of the precession of the tropical points in the sphere of Mazzaroth meanwhile, was laid down in the eighth degree of the latter. It is evident that the first of these impassable terms, the 15th degree, must have been determined by the original relation of the two spheres; the second, the 8th degree, by their actual relation at the time when this doctrine was introduced; and that the third, the 1st degree, was prescribed by the doctrine for itself, as the necessary consequence of its own assumptions.

Fourthly: It appears from the statement of the doctrine by Theon that both the recession of the point in question in one direction, and its progressive advance in the other, were subject to such a law, that the change in its place entailed by each amounted to one degree (one μοῖρα) in 80 years. This is the most important part of the theory for the determination of the time when it must have been first introduced. A recession of eight degrees, at the rate of 80 years for every degree, would amount to a period of 640 years. Now the passage itself, which we began with quoting, distinctly attests that the change of place was supposed to have reached its maximum, that is, to have attained to the amount of eight degrees, 128 years before the epoch of the æra of Augustus, B. C. 30; and  $128 + 313$  or 441 years before that of the æra of Diocletian, A. D. 284: that is, in either case, B. C. 158. It follows that B. C. 158 was the date of the time when the precession *εἰς τὰ ἡγούμενα*, that is, from the 8th degree in the sphere of Mazzaroth to the 1st, had reached the first term in the sphere of Mazzaroth, the term which it might attain to, in that direction, but could not pass: and after attaining to which and coinciding with which it must be reversed and succeeded by a contrary motion *εἰς τὰ ἐπόμενα*, until it again attained to the 8th degree in the sphere of Mazzaroth as before.

Now, the point which had thus been receding on the sphere of Mazzaroth, from the 8th degree to the 1st, being assumed



to be that of the mean or the true vernal equinox, the tropical point in the sphere of nature ; we have already seen<sup>m</sup> that B. C. 158 this point was actually falling on the confines of the first term in the sphere of Mazzaroth, the Julian date of which was March 23–24. The state of the case therefore B. C. 158 was actually such as is implied in the representation of it by Theon : and this coincidence, in our opinion, can leave no doubt that B. C. 158 must have been actually the date when the recession, on either side of the fixed term of the 8th degree in the sphere of Mazzaroth, at the rate of one degree in 80 years, was supposed to have attained to its maximum. It follows that, if we go back  $80 \times 8$  or 640 years from B. C. 158, we must come to the point of time when the recession in either direction must have been zero or 0°: that is, must have first begun. And 640 years from the vernal equinox, March 24 B. C. 158, take us back to the vernal equinox March 31 B. C. 798 ; and from the first term in the sphere of Mazzaroth, March 24, to the eighth, March 31. These coincidences could not be the effect of accident. They can leave no doubt that B. C. 798 must have been as truly the year when this recession was actually 0, as B. C. 158 that when it actually amounted to 8 degrees. It must be the year therefore in which this theory was first introduced ; and we observe that it is actually later than the third Phoenix period, and the third type of the sphere, by 49 years ; as we concluded it might be ; though not earlier.

It was assumed, as we have explained, in the doctrine itself, that while the recession was going on *εἰς τὰ ἡγούμενα*, from the 8th degree of the sphere of Mazzaroth to the 1st ; the progression, *εἰς τὰ ἐπόμενα*, was going on at the same time from the 8th degree to the 15th : and that when the recession turned back from the 1st to the 8th degree in one direction, the progression also turned back from the 15th to the 8th in the other. The epoch of this reaction in either case being the same, B. C. 158 ; and the rate of the reaction the same also, one degree in 80 years ; it was easy to calculate what allowance must be made for it up to a given time later than B. C. 158 : a given year, for example, of the æra

<sup>m</sup> Supra, ch. iv. sect. ix. p. 308.

of Augustus, or a given year of the æra of Diocletian, later than B. C. 158, but before the time of Theon; which, as we have seen<sup>n</sup>, appears to have been Dioclet. 80 A. D. 363–364. Nothing was necessary except to take the interval between B. C. 158 and the given year; and this being divided by 80 would give the number of degrees to which the reaction had accumulated up to the time in question, at the rate of one degree in 80 years. And this number being subtracted from 8, the remainder, or difference, would be the number of degrees to which the reaction must still accumulate before it could return to zero or 0 again. Such is the method prescribed by Theon; or, at least, prescribed and observed by those who adopted this theory. He further subjoined that the difference thus remaining in degrees was treated by them as a standing correction which it was necessary to apply to the tables of Ptolemy; as a quantity to be added to the longitudes found by the tables of Ptolemy. And this, it appears to us, must have been done solely upon the supposition that Ptolemy's longitudes were reckoned from the zero point of this alternate recession and progression *εἰς τὰ ἡγούμενα* and *εἰς τὰ ἐπόμενα* itself; that is from the 8th degree the sphere of Mazzaroth. Ptolemy's longitudes however were notoriously reckoned from the 1st degree of the tropical sphere, or sphere of nature; that is, from the true epoch of longitude, 0° 0' 0'' of the tropical sphere itself. And this too, in our opinion, is or ought to be demonstrative proof that in this theory, and according to the peculiar view which it took of the relation of these two spheres to each other, the 1st degree of the one was the 8th of the other, and *vice versa*: and the normal or rectified position of the tropical sphere itself was in the 8th degree of the sphere of Mazzaroth\*.

\* The hypothesis which we have thus been explaining was adopted by the Arabian astronomer Thebeth Ben Corah of Bagdad, who appears to have flourished in the 9th century. See the account of his system, in Bailly, *Astronomie Moderne*, i. Liv. vi. § xiii. xiv. p. 227, 228: Liv. viii. § viii. p. 299, 300. *Eclaircissemens*, v. § xii. p. 587—§ xvi. p. 592. He founded upon it an imaginary movement of the equinoctial points, backwards and forwards, 400 years one way, and 400 years the other way; forming both

<sup>n</sup> Diss. xii. ch. iv. sect. v. vol. ii. 461.

SECTION VIII.—*On the doctrine of the Genitura mundi; and on the distinction of the planetary houses.*

There are not wanting other proofs of the fact for which we are contending; the actual introduction of the doctrine which we have just been explaining, into Egypt at least, in B. C. 798: and probably still more decisive proofs. But it is necessary first of all to give some account of the astrological distinction of the planetary houses; that is, of the doctrine of the connection of the sun and of the moon, and of the five planets known to the ancients, with some one or some two of the signs of the zodiac, respectively, more than with any of the rest.

According to this theory and to these distinctions, the moon had a special and exclusive interest in the sign of Cancer; the sun in the sign of Leo; but neither in any of the other signs besides: whereas each of the five planets was specially connected with two signs. That is, supposing these planets to be taken in the order of Mercury, Venus, Mars, Jupiter, Saturn, and the signs in their natural order; Mercury was first of all assigned to Virgo, Venus to Chelæ or Libra, Mars to Scorpio, Jupiter to Sagittarius, and Saturn to Capricorn; but as the signs were not all by these means exhausted, nor each appropriated to a different owner; in order to dispose of the remainder among the same five planets, the

together a period of 800 years and 8 degrees: to which he gave the name of the “trepidation of the fixed stars,”—*trepidatio fixarum*, “movement of trepidation,” *motus trepidationis*:

The trepidation talked, and that first moved, of our own Milton, There is reason however to collect from Albatanius, (a later writer than Thebeth,) who also alludes to this hypothesis, but only to expose its absurdity, that the real rate of the movement backwards and forwards, or of the oscillation, assumed by it, was one degree in 80 years, or 10 degrees in the period of 800 years. And this, as we shall probably see by and by, is more agreeable to the Chaldaic origin of the doctrine itself; according to which the rate of the precession must have been assumed at  $10^{\circ}$  in 800 years, or  $1^{\circ}$  in 80 years. According to Averroes, quoted by Augustin Riccius, (Bailly, *Astron. Mod. Éclaircissemens*, loc. cit.) the Babylonians, that is the Chaldeans, were really the first authors of this doctrine; and that, if we are not mistaken, will appear by and by to be the truth.

planets were taken in the inverted order from Saturn to Mercury, and the signs in their natural order as before from Capricorn to Gemini. The effect of which was that the second house assigned to Saturn was Aquarius; the second of Jupiter was Pisces, the second of Mars was Aries, that of Venus was Taurus, and that of Mercury was Gemini. And thus each of these five planets became ever after the lord of two houses; while the sun and the moon in particular never had more than one.

*Planetary houses or domicilia.*

Saturn	Capricorn and Aquarius
Jupiter	Sagittarius and Pisces
Mars	Scorpio and Aries
Venus	Libra or Chelæ and Taurus
Mercury	Virgo and Gemini.
<hr/>	
Luna	Cancer
Sol	Leo.

It may not be disagreeable to our readers to have this scheme and assortment of the planetary houses laid before them as it is poetically described by Nonnus: the time of which description is just after the death of Dionysos Zagreus, and the deluge<sup>o</sup>, supposed to extinguish the conflagration<sup>p</sup> produced by that event.

Καὶ τότε γαῖαν ἅπασαν ἐπέκλυσεν ἰέτιος Ζεὺς  
 πυκνώσας νεφέεσσιν ὅλον πόλον· οὐρανὴ γὰρ  
 βρονταίοις πατάγοισι Διὸς μυχῆσατο σάλπιγξ,  
 ἀστέρες ὅππότε πάντες ἐνὶ σφετέροισι μελάβροισ  
 κεκριμένον δρόμον εἶχον· ἐπεὶ τετράζυγι δίφρῳ  
 ἥελιος σελάμιζε· λεοντείων ἐπὶ νώτων  
 ἱππεύων ἐδὼν οἶκον· ἐπιτροχόωσα δὲ δίφρῳ  
 κάρκινον ὀκταπόδην τριφυλὴς κυκλοῦτο Σελήνη·  
 καὶ δροσερὴν ὑπὸ πέζαν ἰσημερίῳ παρὰ κύκλῳ  
 Κυπρίδ' ἀπὸ κριοῖο μεταστήσασα κεραίῃς  
 εἰαιρινὸν δόμον εἶχεν ἀχείμονα ταῦρον Ὀλύμπου.  
 γείτων δ' ἥελιοιο προάγγελον ἰστοβοῆος<sup>a</sup>  
 σκορπίον εἶχεν Ἄρης, μετρούμενον αἶθροσι ταύρῳ\*,

\* This is illustrated by Cleomedes, De Sublimibus, i. cap. xi. 73. 11.

Δύο εἰσὶν ἀστέρες καὶ τὴν χρῶαν καὶ τὰ μεγέθη παραπλήσιοι διαμετροῦντες ἀλλήλους· ὁ μὲν γὰρ τοῦ Σκορπίου ὁ δὲ τοῦ Ταύρου τὴν πεντεκαιδεκάτην

<sup>o</sup> Cf. vi. 366.

<sup>p</sup> vi. 229 sqq.

<sup>a</sup> Cf. xxxviii. 264.



δόχμιος ἀντικέλευθον ὀπιπεύων Ἀφροδίτην  
καὶ τελέων λυκάβαντα δυωδεκάμηνος ὀδίτης †  
ἰχθύας ἀστερόεντας ἐπέτρεχεν ἀκρόνυχος Ζεὺς,  
δεξιτερὴν τρίπλευρον ἔχων ἐλικωδέα Μήνην·  
καὶ Κρόνος ὄμβρια νῶτα διέστιχεν αἰγοκερῆος  
φέγγει παχύνεντι διάβροχος· ἀμφὶ δὲ φαιδρῇ  
παρθενικῇ πτερύγεσσιν ἔην ὑψούμενος Ἑρμῆς<sup>r</sup>.

And again, of the houses of the sun and the moon in particular :

Οὐκέτι δὲ κλόνος ἦεν ἐν ἀστράσιν, Ἥλιος γὰρ  
χαιτήεντα λέοντα παρὰ σταχυωδέϊ κούρῃ  
ζωδιακῆς ἔστησε παραῖξαντα κελεύθου·  
οὐρανίου δὲ λέοντος ἐπισκαίροντα προσώπῳ  
κάρκινον ἀντικέλευθον ἀθαλπέος αἰγοκερῆος  
ἄψ ἀνασειάζουσα διεστήριξε Σελήνη<sup>s</sup>.

which is intended of the restoration and readjustment of the planetary domicilia, after the contest between Jupiter and Typhoëus or Typhon was over.

In the description indeed of the seven gates of Thebes, dedicated by Cadmus to the seven planets, including the sun and the moon, Nonnus does not arrange them in the usual order, nor in that of the above assignation of their houses to each of them among the signs: the reason of which may perhaps appear hereafter.

Οὐρανίους δὲ  
ἐπὶ τὰ πύλας ἀνέθηκεν ἰσηρίθμοισιν ἀλήταις<sup>t</sup>  
ἰσοτύπους· πρῶτον μὲν ἐς ἐσπέριον κλίμα πῆξας  
Ὀγκαίην<sup>u</sup> ἐπένειμε πύλην γλαυκώπιδι Μῆνι,  
ἐκ βοῶς ὀγκηθμοῖο φερώνυμον, ὅττι καὶ αὐτὴ  
ταυροφυῆς κερόεσσα βοῶν ἐλάτειρα Σελήνη  
τριπλόον εἶδος ἔχουσα πέλει Τριτωνὶς Ἀθήνη.  
δεύτερον Ἑρμαῶν διανγεί γείτονι Μήνῃ  
δῶκε γέρας πυλεῶνα· διαγράψας δὲ τετάρτην

ἐπέχει μοῖραν, μέρος ὧν τῶν ὑάδων. οὗτοι τῷ Ἀρεῖ τὴν χρόαν ὅμοιοι εἰσιν οἱ ἀστέρες, καὶ αἰεὶ κατὰ ταῦτόν ἐπὶ τοῦ ὀρίζοντος θεωροῦνται, ὁ μὲν ἀνίσχων ὁ δὲ καταδυόμενος. He means Antares and Aldebaran.

† Jupiter describes one sign of the zodiac in one year. See supra, ch. vi. sect. i. p. 361.

<sup>r</sup> Cf. the Tetrabiblus of Ptolemy, i. περὶ οἰκων. p. 10: Proclus, in Tetrabiblum, i. xx: Porphyry, De Nympharum Antro, xxii: Macrobius, in Somn. Scip. i. xxi: cf. Saturn. i. 21: Servius, ad Georgica, i. 33: Æneid, viii. 590:

Lydus, De Ostentis, 306. 331. 353. l. 1: Incertus Auctor apud Censorinum, cap. iii: Sextus Empiricus, Adv. Astrologos, v. 343. § 34.

<sup>s</sup> ii. 654.

<sup>u</sup> Cf. xliv. 39.

<sup>t</sup> v. 67 sqq.

Ἡλέκτρην Φαέθοντος ἐπώνυμον, ὅττι φανέντος  
 σύγχροος Ἡλέκτρης ἀμαρύσσεται αἶθριος αἴγλη<sup>w</sup>,  
 Ἡελίῳ πυρόεντι πύλην ἀντῶπιον ἡοῦς  
 μεσσατίην ἀνέθηκεν, ἐπεὶ μέσος ἐστὶ πλανήτων  
 πέμπτην δ' Ἄρῃ δῶκε, πόρε τριτάτην Ἀφροδίτῃ,  
 ἀμφοτέρων ἐκάτερθεν ὡς Φαέθων μέσος εἶη,  
 γείτονα θοῦρον Ἀρῇ διατμήγων Ἀφροδίτης  
 ἕκτην Ζηνὸς ἀγαλμα φαεινοτέρῳ κάμε κόσμῳ  
 ὑψιφανῇ· πυμάτην δὲ Κρόνου λάχεν ἑβδομος ἀστήρ.

which supposes their order to be,

1 Luna	5 Mars
2 Mercury	6 Jupiter
3 Venus	7 Saturn
4 Sol or Phaëthon.	

But in another passage too, in the address of Harmonia to Venus, and in the description of the horoscope of Beroë (afterwards Berytus in Phœnicia), he gives them in this same order again, though not the traditionary one in Egypt.

Ὡς φαμένην θάρσυνε θεὰ καὶ ἀμείβετο μύθῳ·  
 Γίνεο θαρσαλέῃ· μὴ δεῖδιθι μήτερ ἐρώτων·  
 ἐπτὰ γὰρ ἐν πινάκεσσιν ἔχω μαντήϊα κόσμου,  
 καὶ πίνακες γεγάασιν ἐπώνυμοι ἐπτὰ πλανήτων·  
 Πρῶτος ἐϋτροχάλοιο φερώνυμός ἐστι Σελήνης·  
 δεύτερος Ἑρμείῳ πίναξ χρύσειος ἀκούει  
 στίλβων, ᾧ ἔνι πάντα τετεύχεται ὄργια θεσμῶν·  
 οὖνομα σὸν μεθέπει ῥοδόεις τρίτος· ὑμετέρου γὰρ  
 ἀστέρος ἡφίοιο φέρει τύπον· ἐπταπόρων δὲ  
 τέτρατος Ἡελίοιο μεσόμφαλός ἐστι πλανήτων.  
 πέμπτος ἐρευθίων πυρόεις κικλήσκεται Ἄρης·  
 καὶ Φαέθων Κρονίδαο φατίζεται ἔκτος ἀλήτης.  
 ἑβδομος ὑψιπόλοιο Κρόνου πέλεν οὖνομα φαίνων.  
 τοῖς ἐνὶ ποικίλῃ πάντα μεμορμένα θέσφατα κόσμου  
 γράμματι φοινικέοντι\* γέρων ἐχάραξεν Ὀφίων<sup>x</sup>.

Would we know however the true reason why these signs were allotted to the respective planets of which they were reckoned the domicilia, we must refer to another doctrine of antiquity, and a much more esoteric one; that of the *geni-*

\* On the monuments of Egypt the records of time were described as kept by Thoth on the notched leaves of the palm-branch. The serpent too was the emblem of time. Hence this allusion to the γέρων Ὀφίων. Cf. however Eusebius, Præp. Evang. i. 10. § 50. p. 93.

<sup>w</sup> This is to be understood of the Pleiadum ἐπιτολή. Phaëthon is the sun.

*tura mundi* itself. For this purpose we shall extract from Macrobius more fully the passage which we quoted in part, supray, in reference to the original division of the sphere.

Hanc autem rationem iidem illi cur Arietem, cum in sphæra nihil primum nihilque postremum sit, primum tamen dici maluerint, prodiderunt. aiunt incipiente die illo qui primus omnium luxit, id est, quo in hunc fulgorem cælum et elementa purgata sunt, qui ideo mundi natalis jure vocitatur, Arietem in medio cœli fuisse: et quia medium cœli quasi mundi vertex est, Arietem propterea primum inter omnes habitum, qui ut mundi caput in exordio lucis apparuit.

Here we may pause a moment, to observe that this idea of Aries as the *sidus meridianum*, as the sign of the middle of the sky, thus connected in that position with the origin of the world, appears in the following passage of Nonnus also, where he is speaking of Typhoëus, the great rival of Jupiter for the mastery of the universe<sup>z</sup>:

Καὶ διδύμους ἐπὶ πόντον ἀπ' αἰθέρος ἰχθύας ἔλκων  
κρίον ἀνεστύφάλιξε, μεσόμφαλον ἄστρον Ὀλύμπου,  
γείτονος εἰρινοῖο πυραυγέος ὑψόθι κύκλου  
ἀμφιταλαντεύοντος ἰσόζυγον ἡμᾶρ ὀμίχλην.

Macrobius continues: Subnectunt etiam causam cur hæc ipsa duodecim signa adsignata sint diversorum numinum potestati. aiunt enim in hac ipsa genitura mundi, Ariete ut diximus medium cælum tenente, horam fuisse mundi nascentis Cancro gestante tunc Lunam; post hunc Sol cum Leone oriebatur: cum Mercurio Virgo: Libra cum Venere: Mars erat in Scorpio: Sagittarium Jupiter obtinebat: in Capricorno Saturnus meabat. sic factum ut singuli eorum signorum domini esse dicantur in quibus cum mundus nasceretur fuisse creduntur. sed duobus quidem luminibus singula tantum signa in quibus tunc fuerunt adsignavit antiquitas, Cancrum Lunæ Soli Leonem, &c.

We learn from this passage the nature of the tradition handed down in reference to this subject; viz. that, at the supposed epoch of the natale mundi, each of the five planets, as well as the sun and the moon, was in a distinct sign, which

<sup>y</sup> Ch. iv. sect. iv. p. 283: i. xxi. 110, De Somnio Scip.

<sup>z</sup> i. 180.

was considered to have thereby become its own, its proper house and jurisdiction ever after; and moreover that Aries in particular was on the meridian, though the sun was in Leo, and the season of the year was not the spring, but more than a month after midsummer. It will not fail to recur to the reader, that at the epoch of the Phoenix cycles, which bore date from the mean vernal equinox, the sun and the first point of Aries were actually in conjunction at noon: and this coincidence, at the distance of more than a thousand years afterwards, when this doctrine of the *genitura mundi* was first broached in Egypt, might well be supposed a necessary characteristic of the *natale mundi*; if it had always been understood to have been so, of the Phoenix cycle. It is at least a singular combination of distinct characters, that the world should be assumed to have come into being at sunrise on a certain day, as we shall see by and by, in August; and yet Aries at the same moment of time to be on the meridian: and these coincidences must have been purposely adapted to each other.

There is one omission however in the preceding account, without supplying which we could not proceed any further with our examination of the characteristics of this *genitura mundi*; and that is, the actual places of the sun, the moon, and the five planets, at this juncture of time, in their respective signs. For tradition had handed down these too; and though we do not learn them from the preceding testimony of Macrobius, we do so from the following of Firmicus <sup>a</sup>.

Quare illi divini viri atque omni admiratione digni Peto-syris Necepsosque, quorum prudentia ad ipsa secreta divinitatis accessit, etiam mundi genituram divino nobis scientiæ magisterio tradiderunt—Mundi itaque genituram<sup>b</sup> hanc esse voluerunt, secuti Æsculapium et Anubium quibus potentissimum Mercurii (Thoth) numen istius scientiæ secreta commisit. constituerunt enim solem in Leonis parte xv<sup>a</sup>: Lunam in Cancris parte xv<sup>a</sup>: Saturnum in Capricorni parte xv<sup>a</sup>: Jovem in Sagittarii parte xv<sup>a</sup>: Martem in Scorpionis parte xv<sup>i</sup>: Venerem in Libræ parte xv<sup>a</sup>: Mercurium in Virginis parte xv<sup>i</sup>: Horoscopo in Cancris parte xv<sup>a</sup>. secundum itaque hanc genituram... etiam hominum volunt

<sup>a</sup> Lib. iii. præf. p. 45.

<sup>b</sup> Cap. i. p. 45. Mundi Thema.



fata disponi, sicut in illo libro Æsculapii continetur qui *Μυριογένεσις* appellatur.

There can be no doubt that this was the actual traditional account of the *genitura mundi* among the Egyptians. Paullus Alexandrinus, who was writing æra Dioclet. 94, A. D. 378<sup>c</sup>, a little later than Firmicus, has given it in the same way; only that, from some error in his text, the sun's place at the time is specified as the sixth of Leo, instead of the xvth; that of Mars is the xivth of Scorpio; that of Venus is the iiii of Libra; that of Mercury is the vii of Virgo: and these last may have been changes purposely made. But the place of the moon is the xvth of Cancer; that of Saturn the xvth of Capricorn; and that of Jupiter the xvth of Sagittarius; agreeably to the account of Firmicus. Sol creatus est, says Bede<sup>d</sup>, in Leonis decima quinta parte, Luna in Cancrī decima quinta parte...et hæc, he adds, sententia universorum Ægyptiorum. Israelitæ vero et Chaldæi alio modo sentiunt. dicunt enim solem in prima parte Arietis creatum. It is a critical coincidence, to identify this *genitura mundi* in Firmicus with the same thing in Macrobius, that he subjoins to the end of it, Horoscopo in Cancrī xv<sup>a</sup> parte. For though ὠροσκόπος is properly ὁ σκοπῶν τὰς ὥρας, as Hesychius explains it<sup>e</sup>, yet in its technical sense, and in the idiom of the astrologers, it meant that degree in a particular sign, which was rising or in the ascendant at a given time<sup>f</sup>: and being attached at this particular juncture of the *genitura mundi* to the xv<sup>o</sup> of Cancer, it implies that the xvth of Cancer was rising at the time; from which it would follow that Aries would be on the meridian, as Macrobius supposes it to have been.

Now whether there was ever a time when the five planets, and the sun and the moon, were really thus disposed, all at

<sup>c</sup> Fabricius, Bibliotheca Græca, lib. iii. cap. xx. 504, 505. Claudit librum Paulus, says Fabricius, allata genitura mundi, sive descriptione situs planetarum cum primum cœperunt orbem terrarum lumine suo collustrare. tunc scilicet solem ait fuisse in Leonis parte xix (for xv) lunam in Cancrī xv . . . . oriente in Cancro circa horoscopus parte xv, hora noctis undecima assumpta: Αἴτην, inquit, ἐστὶν ἡ τοῦ θνητοῦ καὶ ἐπιγείου κόσμου γένεσις· ἐν τοῖτοις τοῖς

ζωδίοις πρῶτον οἱ προκείμενοι ἀστέρες ἐξεφάνησαν, αἰώνιον ἔχοντες πνεῦμα ἐν ἀφθάρτῳ μένει κείμενοι (κείμενον)· ὁθεν καὶ οἰκητήρια αὐτῶν αὐτὰ τὰ ζῶα κατ-ωνόμασται.

<sup>d</sup> De Planetis, i. 441. Cf. i. 497. Computi Ratio, iii.

<sup>e</sup> ii. 1596.

<sup>f</sup> Proclus in Tetrabiblum, i. xv: Τὸ γὰρ ἀνατέλλον δωδεκατημόριον, ὃ δὴ καὶ ὠροσκόπον καλοῦσιν, κ', τ. λ.

once, in distinct signs, is another question. That the ancients must have believed or professed to believe that there was, appears from this *genitura* itself. And that they attached certain very peculiar significations and consequences to such combinations as these, whensoever they actually took place, appears also. Berossus, observes Seneca<sup>f</sup>, ...arsura...terrena contendit quando omnia sidera...in Cancrum convenerint, sic sub eodem posita vestigio ut recta linea exire per orbem omnium possit: inundationem futuram quum eadem siderum turba in Capricornum convenerit. We may have occasion to illustrate this doctrine more at large in connection with a future calendar. The peculiar position, described in these two instances, is what astronomers mean by the ecliptic conjunction; when one planet is so disposed relatively to another as to be immediately behind it, and so to be eclipsed by it: in which situation the same right line would pass through the centres of both. It would be only analogous to this, to suppose them all situated in the same degree of their respective signs, one after another too; and equally powerful and efficacious too in some way or other; yet not, it would seem, in the way of destruction or dissolution, but of production or conservation, because this was their supposed position at the origin of things.

Firmicus indeed, in the sequel of the passage just quoted from him, denies that this was the actual position of the stars, (meaning the planets,) at the actual *genitura mundi*; but a certain disposition of the kind of much later date. Non fuit, says he<sup>g</sup>, ista *genitura mundi*: nec enim mundus certum diem habet ortus sui....nec eo usque se intentio potuit humanæ fragilitatis extendere ut originem mundi facili posset ratione concipere aut explicare: præsertim cum trecentorum millium annorum major ἀποκατάστασις, hoc est redintegratio, per ἐκπύρωσιν aut per κατακλυσμὸν, spatio perficiatur. his enim duobus generibus ἀποκατάστασις fieri consuevit. namque exustionem diluvium, hoc est ἐκπύρωσιν κατακλυσμὸς, sequitur...voluerunt itaque, he continues, lunam (ita) constituere ut primum se Saturno conjungeret, ut quæ temporum traderet principatum.—And then to Jupiter, and afterwards to each of the rest in its turn: in which case, as

<sup>f</sup> Natur. Quæst. iii. xxix. 1. Opp. v.

<sup>g</sup> Lib. iii. cap. i. p. 47.

Saturn was supposed to be in the xvth of Capricorn, and the moon to set out from the xvth of Cancer, by the conjunction in question would properly be meant an opposition; the xvth of Cancer being  $180^\circ$  from the xvth of Capricorn; the xv $^\circ$  of Leo  $180^\circ$  from the xvth of Aquarius, the house of Jupiter; and so on. In this criticism however of the genitura handed down by tradition, Firmicus seems to have forgotten what he told us himself, that Petosiris and Nekepsos were but the oracles of Æsculapius and Anubis; and Æsculapius and Anubis were the interpreters of Thoth, in delivering these things to posterity:

Quæ Phæbo pater omnipotens, mihi Phæbus Apollo—

Διὸς προφήτης δ' ἐστὶ Λογίας πατρός.

And Thoth must have known the true *genitura mundi*, whether Petosiris or Nekepsos could have done so or not. Besides which, the conflagration and the deluge, the fatal cycle to which he alludes, were the destined modes or instruments of the *destruction* of an existing order and system of things: a totally different thing from its *first production*. He was no doubt mistaken: and this genitura, true or false in itself as it might be, was nevertheless proposed and believed as the actual *genitura* of the existing state of things: and whatsoever an union of the planets in one house might portend, a disposition of each in its own house, and in the same degree of its own house, and at the same time, must have been supposed the most auspicious and promising, and the most agreeable to the order of nature, of all; insomuch as it characterised the very beginning of things, the *natale mundi* itself.

Assuming then that the time when this doctrine was first introduced into Egypt was really B. C. 798; whether there was any thing peculiar in the relative positions of the five planets at that particular juncture of time, we cannot undertake to say: yet some more competent person, whose curiosity may be excited by what we have already said on this subject, or what we have still to say concerning it, may possibly think it worth his while to inquire. The same or a similar peculiarity however is supposed to have characterised the position of the sun and the moon too, at the same juncture of time: that is, the moon is supposed to have been in the xvth degree of Cancer, and the sun in the xvth

of Leo: and this is a character the truth or falsehood of which, for a particular year, and a particular time of a given year, we may perhaps be competent to put to the test of calculation for ourselves. It is manifest that the sun is locally in a given degree of a given sign only on *one* day in every year; the moon must be so on 12 different days in every year: but the moon cannot be in the same degree of the same sign as the sun, on the same day, more than once in every year; nor in a given degree of one sign on the same day on which the sun is in the same degree of the next sign, more than once in any year. If there was any day then, B. C. 798, on which the moon was actually in the xvth degree of Cancer, and the sun in the xvth degree of Leo, at the same time, and that can be ascertained; that day may bid fair to be the day actually intended by this doctrine of the *genitura mundi*, which, as we have seen reason to conclude on other grounds, was first broached in Egypt in this year.

This problem therefore we shall endeavour to solve in due time. We observe however that we consider ourselves justified in assuming that by the xvth of Cancer and by the xvth of Leo we are not to understand the xvth of the tropical Cancer, or the xvth of the tropical Leo; but the xvth of the Cancer of Mazzaroth, the viiith of the tropical Cancer; and the xvth of the Leo of Mazzaroth, the viiith of the tropical Leo. We assume too that by the xvth of the former, or the viiith of the latter, in each instance, we are to understand the end of the xivth of the one, the viiith of the other, the middle point between the xivth and xvth, the viiith and the viiith exactly. The moon was posited exactly at the end of the xivth degree, and exactly at the beginning of the xvth, of her proper house; and the sun correspondently in his. The Julian date of the coincidence, of which we are in search, is pointed out to us at once by these assumptions. It is the Julian date of the xvth degree in the Leo of Mazzaroth; and the Julian date of the 1st degree of that sign in that sphere being July 25, that of the xvth must have been August 8.

Now that the moon and the sun must have been so situated on this day, as the *genitura mundi* supposes, might be generally inferred from the fact of the solar eclipse in the



Tables of Pingré, Nov. 7, 10 h. A. M. for the meridian of Paris, Nov. 7, 11 h. 55 m. 41 sec. for that of Heliopolis, B. C. 798. We have considered it however of sufficient importance to calculate the new moon of August for this meridian B. C. 798 expressly; and that calculation will be found in the appendix to our last volume. It appears from it that the date of the mean conjunction for that meridian was August 11, 1 h. 31 m. 26 s.; and that of the true, August 10, 12 h. 30 m. 13 s. 3 mean time, August 10, 12 h. 27 m. 26 s. 9 apparent time. But with respect to the problem proposed, the true or the assumed place of the sun and the moon, at the proper time, whatsoever that was, August 8 two days before this, we could not enter upon it at present, not being yet in possession of the necessary data; for we have seen reason to conclude that the mean longitude of the moon in particular from the epoch of the Phœnix cycle downwards was reckoned according to a standard peculiar to the Phœnix period, and true *de facto* of the epoch of the period itself, and assumed to be still true at this time also, B. C. 798; of which standard and of which assumptions we have not yet had a proper opportunity of giving an account. We must reserve this calculation therefore for the present. All that we shall say in reference to it beforehand is that when it comes to be made, and in conformity to the necessary conditions of the case, the sun and the moon are actually found to have been disposed in their respective houses, and relatively to each other, as the doctrine of the *genitura mundi* supposed them to be; the former at the end of the seventh and at the beginning of the eighth degree of the tropical Leo, the latter at the end of the seventh and at the beginning of the eighth degree of the tropical Cancer. There cannot be any question then that, if the coincidence of which we are in search actually characterised any one day B. C. 798, that day must have been August 8.

The sun's place at sunrise for the meridian of Heliopolis August 8 this year was consequently the first point of the eighth degree of Leo, the first of the fifteenth of Mazzaroth; the moon's the first of the eighth of the Cancer of the former, the first of the fifteenth of the Cancer of the latter. This point of the Cancer of Mazzaroth would necessarily rise before the

other of the Leo of Mazzaroth: and it is easy to see from the globe itself, (previously rectified for the latitude of the ancient Heliopolis,  $30^{\circ}$  N.) that, when  $97^{\circ}$  of the ecliptic is rising,  $353^{\circ}$  of the ecliptic stands on the meridian. Now  $353^{\circ}$  of the ecliptic, as we have shewn, was the first degree of Aries, the constellation so called, as laid down on the sphere B. C. 847; and it must have been still nearly the same B. C. 798. It follows that the first degree of Aries, (both the constellation so called, and the Krion of Mazzaroth at this time,) was precisely upon the meridian, just as the fifteenth degree of Cancer was coming to the horizon. It must be admitted that this is a critical coincidence; that the horoscope should have been attached to the 15th of Cancer, at the time of this genitura, (that is, that the 15th of Cancer at that moment should have been coming to the horizon,) and yet the first degree of Aries, whether Aries the constellation, or the Krion of Mazzaroth, should have been at the same moment on the meridian also. This coincidence could not have happened, unless the xvth of Cancer at this time had been attached to  $97^{\circ}$  of the ecliptic, and the  $1^{\circ}$  of Aries, or of the Krion of Mazzaroth, to  $353^{\circ}$  of the same\*.

\* Firmicus indeed observes that the virtue or influence of the horoscope was not limited to the particular point or degree which happened to be rising at a given time, but propagated or extended itself through the next 30 degrees which followed it. *Ortus est pars horoscopi, quæ in omnis genituræ tempore ab orientali parte primum emergit, ac per triginta deinceps partes educitur, quæ a Græcis ἀνατολή appellatur*<sup>z</sup>. And again: *Primus est locus, id est illa pars in qua horoscopus est constitutus . . . hic locus, ab ea parte in qua fuerit horoscopus, vires suas per residuas partes triginta extendit; est autem cardo primus, et totius genituræ compago atque substantia, quæ reliquis aditum præbet*<sup>a</sup>.

These very explanations and distinctions however shew that the name of the *horoscope* was given to one point, or degree, only; viz. that which was actually coming to the horizon, at the time; that is, strictly in the ascendant. And that, at the time of this *genitura mundi*, was the 15th of Cancer, in  $97^{\circ}$  of the ecliptic. From which it follows that  $353^{\circ}$  of the ecliptic must have been on the meridian and culminating at the same time.

We may compare with the above of Firmicus, the following from Sextus Empiricus: 'Ὁροσκόπος μὲν οὖν ἐστὶν ὅπερ ἔτυχεν ἀνισχεῖν καθ' ὃν

<sup>z</sup> ii. xviii. *Genituræ Cardines*.

cap. viii. §. 40. Porphyrii.

<sup>a</sup> Cap. xxii. *Locorum Potestates*:  
cf. Stobæus, *Eclogæ Physicæ*, lib. ii.

<sup>b</sup> Adv. Astrologos, v. 340. §. 13.

Now though it could not be supposed that any people, howsoever ignorant and howsoever credulous, could have been made to believe that the world with which they had been so long acquainted was coming into existence, for the first time, before their eyes, on August 8, B.C. 798; it is very conceivable that even the Egyptians might be told, and even they might be made to believe, that, when the world actually did come into existence, it was *on this* day, and under circumstances analogous to *those* of this day—of which their own eyes were witnesses. They could not be made to believe, contrary to the evidence of their senses, that the sun and the moon and each of the five planets were all disposed relatively to each other and to their respective houses *on this day*, as they were *at* the *genitura mundi* itself; but it was very possible they might be made to believe that some of them were; and it is possible too that some of them (even of the planets) might be actually situated at this very time, as they were said to have been at the *genitura mundi*. It is manifest that each of the planets would be liable to return to any given position in the heavens, and within a moderate interval of time; though all of them could not return to the same at once except in an enormous period of some kind or other. The sun and the moon in particular must return at stated times to the same position relatively to each other, in which they were placed at the *genitura mundi* itself: and every such return, once known or supposed to be such, might be appealed to as a sensible proof and attestation of the original relation between them. In this manner, it is conceivable that what actually held good of the sun and of the moon, (and possibly of some of the planets also,) August 8 B.C. 798, might be treated as an evidence of the state of things at the *genitura mundi*.

It remains therefore for us to inquire into the probable origin of this particular doctrine, and into the quarter from

χρόνον ἢ γένεσις ἐπετελείτο. μεσουράνημα δὲ τὸ ἀπ' ἐκείνου τέταρτον ζώδιον, σὺν αὐτῷ ἐκείνῳ. δύνον δὲ τὸ διαμετροῦν τῷ ὠροσκόπῳ· ὑπὸ γῆν δὲ καὶ ἀντιμεσουράνημα τὸ διαμετροῦν τῷ μεσουρανῆματι. οἶον (ἔσται γὰρ σαφές ἐπὶ παραδείγματός) καρκίνου ὠροσκοποῦντος μεσουρανεῖ μὲν κριὸς δύνει δὲ αἰγόκερως ὑπὸ γῆν δὲ ἔστι ζυγός. He might have taken his example from the *genitura mundi* itself.

which it came into Egypt; and by virtue of what coincidence it happened to be received and accredited there for the first time, at this juncture, the epoch of the third Phoenix period; or soon after it.

## CHAPTER VIII.

*On the probable origin of the preceding doctrine; the Chaldaic division of the sphere; and the rise of the Chaldaic system of judicial astrology.*

### SECTION I.—*On the rate of precession, assumed in the preceding theory.*

When Hipparchus, B. C. 147, made his memorable observation of Spica Virginis, and by a comparison of it with one of Timocharis made B. C. 294 or 283<sup>c</sup> had been led to suspect the true cause of the difference appearing between them, in the phenomenon of the precession; he naturally concluded from such data as these observations supplied (the accuracy of each being taken for granted), that the rate of precession might be one degree in 100 years. And though he himself proposed this inference as something doubtful\*, the astronomers who succeeded him, in the same school of Alexandria at least, appear to have acquiesced in it, as in a well ascertained truth of physical astronomy. Ptolemy, in order to reduce the longitudes of the fixed stars from the time of Hipparchus to his own, does nothing more than add to the former in this proportion of one degree for an hundred years<sup>d</sup>.

\* It should be observed that both M. Sedillot junior and M. Biot in modern times have shewn, from the period of 126,000 days 1 hour of mean solar time ascribed to Hipparchus, and from the proportion of the sidereal year to the tropical implied in that period, that Hipparchus must really have recognised a rate of precession of the annual mean value of 46".807—which was very near to the truth in his time. We much doubt ourselves however whether Hipparchus was aware of that fact; though we do not doubt that the rate of precession in question is actually deducible from the analysis of his period.

<sup>c</sup> Cf. Ptolemæi Opp. i. Magna Comp. lib. iii. ii. p. 156: vii. i. p. 2: ii. p. 11. 13: iii. p. 15. Also Diss. xii. ch. ii. sect. ii. Dates of the Magna Compositio iii. Lunar observations. Delam-

bre, Astron. Anc. ii. 247.

<sup>d</sup> See Delambre, Astronomie Ancienne, ii. 241. 264. Cf. the Magna Comp. lib. vii. 11. 13. ad fin.



Φέρεται δὴ θεώρημα, observes Origen<sup>e</sup>, ἀποδεικνύον τὸν ζωδιακὸν κύκλον ὁμοίως τοῖς πλανωμένοις φέρεσθαι ἀπὸ δυσμῶν ἐπὶ ἀνατολὰς δι' ἑκατὸν ἑτῶν μοῖραν μίαν, καὶ τοῦτο τῷ πολλῷ χρόνῳ ἐναλλάττειν τὴν θέσιν τῶν δωδεκατημορίων, ἑτέρου μὲν τυγχάνοντος τοῦ νοητοῦ δωδεκατημορίου ἑτέρου δὲ τοῦ ὥσανει μορφώματος. τὰ δὲ ἀποτελέσματα φασιν εὐρίσκεσθαι οὐκ ἐκ τοῦ μορφώματος ἀλλ' ἐκ τοῦ νοητοῦ ζωδίου, ὅπερ οὐ πάνυ τι δυνατὸν καταλαμβάνεσθαι. Proclus indeed in his commentary on the Timæus disputes the fact of any such precession (or as so produced) at all; yet he too recognises the belief of the phenomenon, and a belief which rested on the authority of Hipparchus and Ptolemy, and assumed the precession at this rate of one degree in one hundred years. Ὁ μὲν οὖν Πλάτων, says he<sup>f</sup>, τοιαύτην κίνησιν ἀποδέδωκε τοῖς ἀπλανέσιν. ὅσοι δὲ καὶ τούτους ἐπὶ τὰ ἐπόμενα κινουσί περὶ τοὺς τοῦ ζωδιακοῦ πόλους δι' ἑκατὸν ἑτῶν μοῖραν (μίαν), ὥς Πτολεμαῖος καὶ Ἱππαρχος πρὸ τούτου, τηρήσεσι πιστεύσαντες· πρῶτον μὲν ἴστωσαν ὅτι καὶ Αἰγύπτιοι πρὸ αὐτῶν τηρήσεσι χρῆσάμενοι, καὶ ἔτι πολλῷ πρότερον Χαλδαῖοι καὶ πρὸ τῶν τηρήσεων ὑπὸ θεῶν διδαχθέντες, ὁμοίως Πλάτωνι περὶ τῆς τῶν ἀπλανῶν κινήσεως ἐδόξασαν. . . .

Πρὸς δὲ τούτοις, he continues, καὶ τὰ φαινόμενα τοὺς ἔχοντας ὅμματα πείθειν ἱκανά. δῆλον γὰρ ὅτι περὶ τοὺς πόλους τοῦ ζωδιακοῦ κινουμένων αὐτῶν εἰς τὰ ἐπόμενα, καὶ τῆς ἄρκτου δύνειν ἐν τούτοις ἔδει τοῖς τόποις οὐκ ὀλίγον, (ἀπὸ τῶν Ὀμήρου χρόνων ἀειφανοῦς λεγομένης,) οὕτως ὥσπερ καὶ νῦν πλείονας μοίρας κεκινήσθαι τῶν πεντεκαίδεκα, καὶ οὐ περὶ τὸν τοῦ ἰσημερινοῦ πόλον· καὶ τὸν Κάνωβον μηκέτι φαίνεσθαι, βραχεῖαν μὲν ὑπὲρ τὸν ὀρίζοντα ποιῶντα περίοδον τοῖς ἐν τῷ τρίτῳ κλίματι, τοῖς δὲ ἐν Ῥόδῳ παραζέοντα τὸν ὀρίζοντα, καθάπερ λέγει Ποσειδώνιος.

Now that the doctrine of which we have been endeavouring to give an account; that of recession in one way, and of an opposite procession in another way, each to the extent of eight degrees, the period of which was 640 years; involves a

<sup>e</sup> Apud Euseb. Præp. Evang. vi. 11. § 78. p. 123. Contra Fatum.

<sup>f</sup> In Timæum, Δ (iv) 671 = 277 D. Compare however Simplicius, Scholia in Aristotelem, De Cælo, ii (290. b. 8.) 496. 23 a: "Ὅτι ἡ μὲν ἀπλανὴς καλουμένη σφαῖρα, εἴπερ. . . μὴ δέχεται τις ἐπ' αὐτῆς τὴν Ἱπάρχου τε καὶ Πτολεμαίου τήρησιν, ὥς δι' ἑκατὸν ἑτῶν μίαν

μοῖραν καὶ αὐτῆς ἀνάπαλιν κινουμένης. . . 28 a; Ἐπειδὴ δὲ καὶ ὁ ἡμέτερος καθηγεμῶν Ἀμμόνιος ἐμοῦ παρόντος ἐν τῇ Ἀλεξανδρείᾳ τηρήσας διὰ τοῦ στερεοῦ ἀστρολάβου τὸν Ἀριτοῦρον εὑρε πρὸς τὴν κατὰ Πτολεμαῖον ἐποχὴν αὐτοῦ τοσοῦτον ἐπικινηθέντα ὅσον ἐχρῆν κατὰ ἑκατὸν ἑτῆ μίαν μοῖραν ἀντικινούμενον. Simplicius, fol. 1126.

rate of precession of one degree in 80 years, is evident : and that a rate of precession of one degree in 80 years would be much nearer the truth than that of one degree in 100 years, assumed by Hipparchus and by Ptolemy and the rest of the astronomers of the same school, is also evident. It could not therefore be said that this assumption was altogether mistaken ; or that it was not, to a certain extent, in accordance with phenomena ; and capable of accounting for them.

In comparison however of the more accurate measure of the same kind, which appears to have been known to the ancient Egyptians, even this must be considered altogether erroneous. As to the standard assumed by the ancient Egyptians, it seems to have been scarcely inferior to the modern itself ; and so long as the facts which the history of their Phoenix cycle brings to light remain uncontroverted and unconfuted, it does not appear to us possible to deny one of two inferences, necessarily deducible from them ; either that their observation of the heavens at a given time was the most accurate and in accordance with phenomena which could be imagined ; or that their theory on the subject of this particular phenomenon of precession, and consequently their ideas on physical astronomy in general, were sound and correct, and agreeable to the truth, at all times.

It is inconceivable then that so false and mistaken a theory concerning the alternate recession and procession of the cardinal points, or so faulty a standard of the rate of precession as that of one degree in 80 years, could have proceeded from the Egyptians ; or from those in particular among the Egyptians, who had the care and administration of the Phoenix cycle (that is, of the sphere, and of the lunar mansions, and of every thing else of that kind,) down to the epoch of the third Phoenix period at least, B. C. 848 or 847. Down to that time every thing connected with each of these systems is seen to have been still conducted on the same principles by which it had been regulated from the first. Down to this time consequently the sound science, and the correct astronomy, both theoretical and practical, of the ancient Egyptians, must have been inherited by their successors. But between B. C. 848 and B. C. 798, there was an interval of 50 years ; and an interval even of 50 years, under certain cir-

cumstances, is competent to originate and to bring about great changes. We know not indeed what was actually passing in Egypt between B. C. 848 and B. C. 798; because we have no contemporary history of that country during this period, which descends into particulars, or which could be trusted. There is reason however to believe that changes did take place within these 50 years, in one part of Egypt or another; innovations on old and established usages, and on long-received traditional opinions: to say nothing of political revolutions going on in that country at the same time. Individual novelties and paradoxes at least are liable to spring up at all times, and any where; and, howsoever obscure in their origin, and destitute of authority and influence at first, or confined to those who first conceive and first propose them, experience shews that once broached and once put into circulation, for one reason or other, and from a concurrence of circumstances of various kinds, they may prevail and establish themselves at last, to the exclusion of every thing judicious, every thing reasonable and sound, of the same kind, which before existed and was before believed.

From what quarter then is it most probable that these new doctrines in astronomy, so contrary to the truth, as well as to the original ideas of the Egyptians and to their traditionary and hereditary opinions on the same subjects, down to a certain time, actually emanated and actually got footing among them? We have no hesitation in answering, from Babylonia: from Chaldæa: from a caste or a school of astronomers of old, whose actual knowledge on all those points in which the true science of astronomy was most concerned, whatsoever the ancients may pretend to the contrary, was greatly inferior to that of the Egyptians; and who, in reality, never were superior to the Egyptians in any thing but their own factitious and self-created, and consequently purely imaginary and unsubstantial, science of Judicial astrology. In astrology, which they themselves invented, and which they themselves elaborated to the utmost degree of the perfection to which it ever attained, they were superior not merely to the Egyptians, but to all the ancient world. In this one department of science, as it was nominally called, but of falsehood, imposture, and credulity, as it was more rightly to

be termed; the Chaldaean astronomers were *facile principes*. And it was in an evil hour that, out of deference to their authority in this respect, the Egyptians submitted to go to school to them, (some of the Egyptians at least,) and to sacrifice even their own genuine and correct tradition to the innovations and absurdities of the Chaldaic system, in which there was nothing of real astronomy beyond the name.

SECTION II.—*On the Chaldaic sphere, and on its derivation from the Egyptian.*

In order however that we may bring forward some proofs of the opinion which we have thus asserted; we must begin with tracing the history of the Chaldaic sphere, as we have hitherto done that of the Egyptian: and the first thing to be done is to demonstrate that the Chaldaic sphere itself was derived from the Egyptian.

We observe then first of all, that frequent mention is made in Firmicus of the *Sphæra Barbarica*; as for example, in the two following passages: *Hæc tamen omnia tunc exponemus cum ad Sphæræ Barbaricæ interpretationem veniemus, quæ divinus ille Abraham et prudentissimus Achilles verissimis conati sunt rationibus invenire* §—*Hæc sunt, Mavorti decus nostrum, Barbaricæ Sphæræ principia: hæc est quam promissimus Chaldæi operis disciplina* <sup>b</sup>. From which last observation it must be a just and legitimate inference that, by the *Sphæra Barbarica* in particular, he meant the Chaldaic sphere.

The *Sphæra Barbarica* is alluded to by Varro apud Servium; and we may conjecture from that allusion that Nigidius, among the Romans, wrote a commentary upon it: Varro, *de scenicis originibus, vel in Scauro*; “*Triptoleum dicit Nigidius Sphæræ Barbaricæ sub Virginis signo aratorem quem Orona Ægyptii vocant; quod Orum Osiridis filium ab hoc educatum dicunt*”<sup>i</sup>. There was a *Sphæra Græcanica* also, so called as if in contradistinction to a *Sphæra Barbarica*; and Nigidius wrote an explanation of that; which is often quoted by the Scholiast on the *Aratea Phænomena* of Germanicus Cæsar. But we much question whether the name

§ Lib. iv. cap. x. p. 98.

<sup>b</sup> Ibid. viii. cap. xvii. p. 223.

<sup>i</sup> Ad Georgica, i. 19. Cf. ad i. 32.



of the Sphæra Barbarica, in opposition to a Sphæra Græcanica, was given to any sphere but that of Chaldæa, Babylonia, or Assyria: or that the Egyptian sphere in particular was ever so termed by the Greeks to distinguish it from their own. At least it must be evident from the testimony of Firmicus, just produced, that the Sphæra Barbarica was the *astrological sphere*, properly so called, and the Chaldaic sphere too; as in fact it could not fail to be; the Chaldaic sphere and the astrological sphere being necessarily the same thing.

Again, we observe that with respect to this Chaldaic sphere itself, and to the date of its institution, some things may be taken for granted, which are nevertheless very important for the determination of that question. i. This Chaldaic sphere too, as well as the Egyptian, recognised the distinction of a fixed and immoveable, and of a shifting and variable, sphere; the latter also, in this Chaldaic combination of the two, laid down in terms of the former; just as in the Egyptian. It could not therefore be older than the first origin of this distinction; that is, than the epoch of the first Phœnix period, B. C. 1847.

ii. The signs in the Chaldaic sphere were never known except by the zodiacal names of Aries, Taurus, Gemini, and the rest. It could not therefore be older than the first invention and imposition of those names; that is, than the epoch of the second Phœnix period B. C. 1347.

iii. It is a just inference from these two facts that, if the Egyptians first introduced the distinction and combination of the two spheres, and first gave those names to the signs which they ever after retained; the Chaldaic sphere, agreeing with the Egyptian in each of these respects, must have been borrowed from the Egyptian. And this is further confirmed by the fact that the most remarkable peculiarity of the Egyptian sphere, which began to distinguish it from the time when the signs began to be connected with zodiacal names, and continued to distinguish it for a certain length of time afterwards, the assignation of 60 degrees to Scorpio, was characteristic of the Chaldaic sphere also<sup>k</sup>; and what is more, continued to characterise the Chaldaic sphere, even

<sup>k</sup> Supra, ch. vi. sect. ix. p. 380.

after it had ceased to be peculiar to the Egyptian. The Chaldaic sphere still consisted of eleven signs, when the Egyptian consisted of twelve; and the same space in the sphere was still assigned to Scorpio in that, which was now divided between Libra and Scorpio in the other. There was consequently no Libra in the Chaldaic sphere, as there was in the Egyptian: though there was always a Scorpio and a Chelæ. The Chaldaic sphere then must have been borrowed from the Egyptian: it never could have been an original conception of its kind: and it must have been so borrowed critically in the interval between the epoch of the second Phœnix period and second type of the Egyptian sphere, B. C. 1347, and that of the third period and third type, B. C. 848 or 847.

SECTION III.—*On the connection of the astrological system of the Chaldæans with the sphere.*

We observe in the next place that the whole of the astrological system of the Chaldæans, (howsoever exclusively their own invention,) must have been later than those distinctions in the sphere, to which we have just alluded.

For first it appears from Origen<sup>1</sup> that it recognised a difference between the νοητὸν ζώδιον, and the μορφωτὸν, or οἰοεὶ μὀρφωμα, (as he designated it;) the former something subjective of its kind, and capable of being apprehended in idea only; the latter objective or real, and capable of being apprehended by the senses. The former was fixed and immutable; the latter was liable to shift and change its place. It is manifest then that this last was the sphere as laid out and distinguished into zodia, and as liable to be affected by precession: and therefore the former, as the sphere opposed to that, must have been the ecliptic, abstracted from all such representations, made up of and distinguishable into the signs alone, and those too in their simplest and most general form; the idea of which was always one and the same. Yet in the astrological system of the Chaldæans the power or virtue, which resided in the parts of the sphere, was attached to these signs in the abstract, and was confined to them; i. e. to the νοητὸν ζώδιον, not to the μορφώματα. It is clear then that this system recognised such a distinction as

<sup>1</sup> Supra, ch. viii. sect. i. p. 461.

that of the sphere of Mazzaroth and of the tropical sphere; and that it was based on such a distinction itself. It could not therefore be older than the coexistence of such distinctions; that is, than the epoch of the first Phœnix period; when that first began to be the case.

Again it appears from Diodorus Siculus<sup>m</sup> that this system of the Chaldæans was so exclusively confined to the limits of the zodiac, that among the extrazodiacal stars it took account only of 24; 12 to the north, 12 to the south, of the zodiac<sup>n</sup>; and to such of these as were visible it assigned a certain office in relation to the living, that of being their judges in some sense or other, on a large scale; and to such as were invisible, a similar office in relation to the dead, that of being their judges too. The five planets found their place in this system under the name of ἐρμηνεῖς or interpreters<sup>o</sup>; and as the context implies, of the will of the fates or the decrees of destiny: because, from their being endued with the power of locomotion, within the limits of the zodiac, they alone were supposed to know what was destined to happen, and to come to pass, every where; or at least, they were the fittest to make it known to the rest of the universe. According to Sextus Empiricus<sup>o</sup> three of the number, as specially cooperating with the sun, (the lord of all things which came into existence by day,) Saturn, Jupiter, and Mercury, were called ἡμερινοὶ also; though Diodorus tells us<sup>o</sup> that Saturn in particular, among the Chaldees, went itself by the name of the sun.

Next to the five planets, Diodorus<sup>o</sup> speaks of 30 inferior or subordinate principles, which he calls βουλαῖοι θεοί; and by which he means, (as we shall see by and by,) the Decani of the different signs of the sphere: and over these, as the κύριοι πάντων, as the ruling principles, superior to and presiding over these gods of counsel themselves, he speaks of twelve others; each of which had a sign of the ecliptic and a month of the year to itself: and to which all the rest were bound to render an account perpetually.

Now these last cannot be any thing but the signs of the ecliptic, regarded as persons, and deified: yet the power and

<sup>m</sup> ii. 30, 31.  
Sextus, Adv. Astrol. v. 343. § 32.

<sup>n</sup> Ibid. 31.

<sup>o</sup> Ibid. 30. Cf. Sextus Empi-

influence belonging to these twelve is clearly supposed to be paramount to every thing else in the same system. The entire system therefore, both in its abstract conception and in its practical application, must have been devised for the sake of the ecliptic, and must have been limited from the first to the ecliptic; or to so much of the heavens only, on either side of it, as lay within the zone called the zodiac. Whatsoever composed that part of the heavens, and whatsoever was ordinarily to be found therein, (the sun, the moon, the planets,) was taken into account in the system. It had its place and its office allotted to it in the system; but nothing else, or as good as nothing: for twelve stars only on one side of the zodiac, and twelve on the other, to be considered in this system, and to have a particular office assigned them in the system, partly in relation to the living and partly in relation to the dead, compared with the innumerable multitude of stars on either side of the zodiac besides, were as good as nothing; and rather confirm than invalidate the principle which must have been laid down as the foundation of such a system. We may justly infer then that the system could not possibly be older than what it was critically and exclusively adapted to: and if the zodiac itself was not older than the epoch of the second Phoenix period and the second type of the sphere, neither could this system be so.

SECTION IV.—*On the graduation of the Chaldaic sphere in decimis partibus.*

We observe in the next place, That, whensoever the Chaldaeans received the sphere from the Egyptians, yet, if it was to be subordinate to the peculiar system of astrology which they grafted upon it; they would have a particular reason for preferring a certain division or graduation of the sphere itself to any other.

There cannot be any doubt that it must have been a part of their system from the first to divide every sign into three equal parts; and to assign each of those parts to a distinct principle, which became thereby connected with that one, in a more special manner than with any of the rest. As there were twelve signs, and each of them consisted of 30 degrees, there would be  $12 \times 3$  or 36 such principles; each of which



would thus have the property or charge of a third part of its own sign, and of ten degrees of the sphere. These principles were known in the astrological system of antiquity by the name of Decani. Their number was never more or less than 36. Οὐδὲ γὰρ ἑπτὰ νόμοι (i. e. divisions of the οἰκουμένη), observes Bardesanes<sup>p</sup>, εἰσὶ κατὰ τοὺς ἑπτὰ ἀστέρας, οὐδὲ δώδεκα κατὰ τὰ ζώδια, οὐδὲ τριακονταεξ κατὰ τοὺς δεκανοὺς, ἀλλὰ μυρίοι. — Ἐπεὶ μοι ἐν τοῖς ἔμπροσθεν γενικοῖς λόγοις ὑπέσχου δηλῶσαι περὶ τῶν τριάκοντα ἕξ δεκανῶν, νῦν μοι δῆλωσον περὶ αὐτῶν καὶ τῆς τούτων ἐνεργείας<sup>q</sup>—Οὕτως βούλομαι σε νοεῖν καὶ περὶ τῶν τριάκοντα ἕξ δεκανῶν—Ὑπὸ δὲ τὸν κύκλον τοῦ σώματος τούτου τετάχθαι τοὺς τριάκοντα ἕξ δεκανοὺς, μέσους τοῦ παντὸς κύκλου καὶ τοῦ ζωδιακοῦ—Νοοῦμεν οὖν καὶ αὐτῶν τῶν ἑπτὰ καὶ (τοῦ) παντὸς τοῦ κύκλου μᾶλλον δὲ τῶν ἐν κόσμῳ ἀπάντων ὥσπερὶ φύλακας αὐτοὺς περιίστασθαι, πάντα συνέχοντας, καὶ τηροῦντας τὴν τῶν πάντων εὐταξίαν.—Ἐλεύθεροι δὲ ὄντες ὑπεράνω πάντων ὥσπερ φύλακες ἀκριβεῖς καὶ ἐπίσκοποι τοῦ παντὸς περιέρχονται τῷ νυχθημέρῳ τὸ πᾶν—Τούτους καλοῦσιν οἱ πολλοὶ δαίμονας...ἀλλὰ ἐνεργεῖαι εἰσι τῶν τριάκοντα ἕξ τούτων θεῶν. Singula signa in tres partes dividuntur, says Firmicus<sup>r</sup>, singulae autem partes singulos habent decanos, ut sint in singulis signis terni decani, quorum singuli ex xxx partibus denas possident, et dominium suum ac potestatem in denas partes exserunt. sunt autem infinitae potestatis et licentiae, ut qui fata hominum potestatis suae auctoritate designent. And again<sup>s</sup>: Singula igitur signa...ternos habere decanos diximus. sunt autem decani magni nominis ac potestatis, sicut Necepso Aegypti justissimus imperator optimus quoque astronomus per ipsos decanos omnia vitia valetudinesque collegit. Porphyry also in his epistle to Anebo thus described the estimation in which these Decani were held, along with the other principles which presided over the spheret. Χαιρήμων μὲν γὰρ καὶ οἱ ἄλλοι οὐδ' ἄλλο τι πρὸ τῶν ὀρωμένων κόσμων (lege κόσμον) ἡγοῦνται, ἐν ἀρχῇς λόγῳ τιθέμενοι τοὺς Αἰγυπτίῳ οὐδ' ἄλλους θεοὺς πλὴν τῶν πλανητῶν λεγομένων καὶ τῶν συμπληρούντων τὸν

<sup>p</sup> Contra Fatum, apud Euseb. Præp. Evang. vi. 10. 90. 37.

<sup>q</sup> Stobæus, Eclogæ Physicæ, lib. i. cap. xxii. sect. 9. Hermetis. cf. lib. i. xlv. § 2. Hermetis.

<sup>r</sup> Lib. ii. cap. iv. p. 17.

<sup>s</sup> Ibid. iv. cap. xvi. 107.

<sup>t</sup> Apud Ensebium, Præp. Evang. iii. 4. 197. 1. cf. the Epistola, prefixed to Jamblichus, De Mysteriis: pag. 7. l. 28-39: also Jamblichus, sect. viii. cap. iv. 160. and the notes of Gale, p. 304.

ζωδιακὸν, καὶ ὅσοι τούτοις παρανατέλλουσι, τὰς τε εἰς τοὺς δεκανοὺς τομὰς, καὶ τοὺς ὠροσκόπους καὶ τοὺς λεγομένους κραταιοὺς ἡγεμόνας, ὧν καὶ τὰ ὀνόματα ἐν τοῖς ἀλμενιχιακοῖς φέρεται, καὶ θεραπείαι παθῶν καὶ ἀνατολαὶ καὶ δύσεις καὶ μελλόντων σημειώσεις, κ', τ. λ.

In the Scholia on Apollonius Rhodius<sup>u</sup>, the 12 signs are said to have been called by the Egyptians the θεοὶ βουλαῖοι, and the planets the θεοὶ ῥαβδοφόροι. The Decani are styled by Diodorus θεοὶ βουλαῖοι<sup>w</sup>; and though he speaks of them there as only 30 in number, there is reason to suspect an error in the numeral reading of his text in that instance: for he specifies it, even in the same passage, as their office to preside over the superior and the inferior hemisphere, one half of their number over each; and to keep up a constant communication with each other by an interchange of messages every *ten* days. Now with 30 Decani only, this would imply that there were only 300 days in the year, and only 300 degrees in the sphere; but with 36 Decani, there would be 360 degrees and 360 days at least: on which supposition this interchange of communications would go on without interruption through the whole year.

Quapropter Grajæ dixere Decania gentes.

A numero nomen positum est, quod partibus astra

Condita tricenis triplici sub sorte feruntur,

Et tribuunt denas in se coëuntibus astris;

Inque vicem ternis habitantur singula signis<sup>x</sup>.

The reading of the text of Manilius varies much in the first line of this passage: and there is good reason to question the soundness of the *recepta lectio*, *Grajæ gentes*. It is plainly to be inferred however from the context that he himself derived this word *δεκανὸς* from the Greek *δέκα*, or the Latin *decem*. But *δεκανὸς* could not be obtained from *δέκα* in Greek, according to any analogy; much less from *decem* in Latin: from which indeed we might first derive *decimus* or *decumus*, and then from that *decumanus*; but not *decanus*. Learned men therefore have naturally agreed to search for the root of this word, not in the Greek or in the Latin, but in the Chaldaic; and if the Chaldees were the first to conceive the idea of these decani, they must have been the first

<sup>u</sup> iv. 262.

<sup>w</sup> ii. 30.

<sup>x</sup> Manilius, iv. 298.

to give them their name too. And from what language would they derive that name but their own? Accordingly there is a word in the Chaldee language which appears to be the original of this appellation; *Dicoun*, or *Douky*: the meaning of which is *inspector* or *conductor*. And what name could be more proper for such an astrological conception as this, than that of inspector or conductor? These decani were the ἐπισκοποὶ of the universe; and it was also the office of each to lead his ten degrees, in their turn, all round the heavens and all round the sphere.

It is evident therefore that, for the sake of their astrology and of its connection with the sphere no division of the sphere itself could possibly appear to the Chaldees so necessary or so desirable as one *in decimis partibus*. That there was *actually* such a division of the sphere may be collected from the following testimony of Manilius also: and that if there was, it must have been made by the Chaldees and for the sake of their astrology, may now be taken for granted.

Una ergo in tropicis pars est cernenda figuris,  
 Quæ moveat mundum, quæ rerum tempora mutet,  
 Facta novet, consulta alios declinet in usus,  
 Omnia in adversum flectat contraque resolvat.  
 Has quidam vires octava in parte reponunt:  
 Sunt quibus esse placet decimam: nec deficit auctor  
 Qui primæ momenta daret frenosque dierum<sup>z</sup>.

#### SECTION V.—*On the date of the Chaldaic sphere.*

Now though the cardinal points of the tropical sphere, at the epoch of the second Phœnix period B. C. 1347, were falling in the twelfth degrees of the sphere of Mazzaroth, the time would come, between the epoch of that period and that of the next, when they would be found to be falling in the tenth degrees. We have seen that the Chaldaic sphere could not have been older than the second Phœnix period; and yet that it must have been older than the third. Consequently its actual date must have been some time between the two.

Now if we are ever permitted to treat of the Babylonian

<sup>y</sup> See Daunou, iii. Leç. ii. p. 86. cf. Gale in Jamblichum, p. 304. not.

<sup>z</sup> iii. 676.

calendar, we trust that we shall make it appear that the Chaldæans corrected the primitive calendar, for the first time, æra cyc. 2901 A. M. 2899 B. C. 1106, and attached the epoch of the correction to that of the 17th of the primitive Athyr for the time being, the Julian August 8. We shall endeavour to shew at the same time, that they introduced, on the same occasion, a distinction of principles in their theology, as the representatives of the great cosmogonic powers, a male and a female; the former analogous to the Egyptian Osiris and the latter to the Egyptian Isis. We have no doubt that this was the epoch of their system of judicial astrology too, and the date of the sphere to which it was accommodated; and that both came into existence together at this time.

We learn from Sextus Empiricus<sup>a</sup>, that this distinction of principles into masculine and feminine pervaded their zodiac itself; the odd signs, beginning with Aries, representing the masculine, the even ones, beginning with Taurus, the feminine, all round the sphere: and not only the signs in general, but the subdivisions and parts of the signs also. For he tells us<sup>b</sup> that, as the zodiac generally was divided into twelve signs of 30 degrees each, bearing the names of Aries, Taurus, Gemini, Cancer, and so on; and alternating one with another, a male and a female sign, all round the sphere; so was each sign divided into twelve equal parts, each of them consequently containing  $2^{\circ}5'$  of the whole, (or  $2^{\circ}30'$ ) called by the same names of Aries, Taurus, Gemini, Cancer, and so on, and alternating in the same order, a male and a female, in each<sup>c</sup>. So that on this principle each sign was an epitome of the ecliptic; each was a miniature of the ecliptic, a zodiac on a smaller scale. There is every reason therefore to conclude that the theology, the cosmogony, the astrology, and the sphere of the Chaldæans all came up together; and all at the epoch of their correction of the primitive calendar itself.

Now though this correction at Babylon, like many others of the same kind before and after it, is ultimately to be traced up to the example and precedent of the Egyptian cor-

<sup>a</sup> Adv. Astrolog. v. 339. § 5-7.

<sup>b</sup> § 9.

<sup>c</sup> This distinction of masculine and feminine signs is recognised obiter by

Horopollo, i. 11. It was in fact generally received among the writers on astrology: see Proclus, in Tetrabiblum, i. xv.



rection (if *such* it might be called) which was signalized by the introduction of the worship of Osiris and Isis, and by the institution of the Isia; and *was* therefore attached in the first instance to the proper Isiac date, Athyr 17; yet it was peculiar to it, (at least it was common to it with few other corrections of antiquity besides,) to be attached to a fixed Julian term, the same with which Athyr 17 was coinciding at the time, August 8 B. C. 1106. This Babylonian correction of the primitive calendar, though attached to a cyclical term in the first instance, was not a cyclico-Julian, but a Julian, correction of its kind; a Julian calendar with a proper cycle of leap-year, and a proper Julian date for the common years of that cycle, and for the leap-years respectively, August 8 in the latter, August 7 in the former; and this cycle of leap-year itself altogether the same as the cycle of the Sothiac calendar of the Egyptians: so that B. C. 1106 or B. C. 798 would be leap-year alike in both.

Now the number of years between the epoch of the Phœnix cycles, B. C. 1847, (that of the first type of the sphere also,) and the date of this correction, August 8 B. C. 1106, was just 741. And in 741 years the precession, according to our table, would amount to  $10^{\circ} 18'$ .

*Increment in mean longitude.*

y.	°	'	''
700 =	9	44	8.679
40 =		33	22.782
1 =			50.070
<hr/>			
741 =	10	18	21.531

Supposing precession however for this interval of time to be assumed at the rate of one degree in 80 years; 741 years after B. C. 1847 it would appear to be only  $9^{\circ} 15'$ : for 720 years would =  $9^{\circ}$ , and 20 years would =  $15'$ . We have little doubt ourselves that this was actually the time when this peculiar rate of the precession was adopted in Chaldæa; and that this was the reason why; viz. in order that thereby the cardinal points of the tropical sphere might be made to fall in the tenth degrees of the sphere of Mazzaroth. This last assumption indeed could not be considered an hypothesis, being actually matter of fact. The tenth term in the sphere of Mazzaroth, according to the Phœnix rule, would fall April 2 at noon: and B. C. 1106, the mean vernal equinox

also, for the meridian of the ancient Babylon, (37 m. east of that of our Tables,) was falling April 2, 13 h. 35 m. 19s. 12th. —that is, very near the point of noon: and it might be supposed to be falling critically at noon. This coincidence, together with the other considerations which have just been pointed out, in our opinion was abundantly sufficient to induce the Chaldees to fix upon this epoch as that of the combination of the tropical with the Mazzaroth sphere; and to lay down the former in the tenth degree of the latter, the most convenient division of all for their astrological system also; and to distribute the precession, assumed at nine degrees, over the interval from B. C. 1847 to B. C. 1106, at the rate of one degree in 80 years.

The Mazzaroth epoch then, in their sphere would be the same as in the Egyptian, March 24 at noon to March 25 at noon; the tropical epoch, as laid down in that at first, would be April 2 at noon to April 3 at noon. And this being the date of the mean vernal equinox in their sphere, January 2 or 3 would be that of the mean winter solstice. It is in our power to shew, by means of the traditionary date of the deluge handed down by Berosus, that the date of the winter solstice must actually have been assumed at this time January 2—3. It appears also from Columella<sup>d</sup> that in his time the date of the winter solstice *secundum Chaldeos* was reckoned to be ix kal. Januarias, Dec. 24 Roman: to which day he attaches this notice, “Brumale solstitium, sicut Chaldaei observant.” The relation of the Roman to the Julian calendar at this time was such that the 24 Dec. in the former answered to the 25 Dec. in the latter. The true date of the winter solstice at the same time was falling Dec. 22 or 23. There was two days’ difference therefore between the Chaldaic date at the time and the true. Now according to the theory which we explained *supra*<sup>e</sup>, from Theon, and according to its application to the Julian dates of such phenomena as these; the tropical points having begun to recede from the first term in the sphere of Mazzaroth (March 23—24) in B. C. 158, and at the rate of a degree in 80 years, might be supposed in Columella’s time (circ. A. D. 49) to be two days and part of a third in advance of it. That is, the date of the winter solstice, on this principle, instead of being Dec. 23,

<sup>d</sup> xi. cap. ii. § 94.

<sup>e</sup> Ch. vii. sect. v sqq.

would be Dec. 25\*. But this is a point which belongs more properly to the consideration of the Chaldaic calendar.

SECT. VI.—*On the adoption of the Chaldaic theory of precession in Egypt; and on the reasons to which it was probably due.*

We are now better prepared to answer the question, From what quarter could the first idea of this peculiar doctrine of the alternate recession and precession of the cardinal points have got admission into Egypt? There can scarcely be a doubt that it must ultimately have come from Chaldæa. It is a singular coincidence at least that we find this doctrine making its appearance in Egypt, in B. C. 798, along with that of a supposed *genitura mundi*, attached to August 8, and even in this year, B. C. 798, to a certain extent authenticated and confirmed by the same characters on that day, as on the day of the pretended *genitura* itself; and yet that the Chaldæans should have had among them a particular cosmogony, from as far back as B. C. 1106, which attached the *natale mundi* also to the same day, August 8.

If it is further inquired by whom, or through whom, this doctrine, which first makes its appearance in Egypt in this year, may most probably be supposed to have been first broached among the Egyptians, we should have little scruple in answering, by or through Petosiris and Nekepsos, or those who wrote in the name of Petosiris and Nekepsos, *mediately*, but *ultimately* by and through those from whom even Petosiris and Nekepsos, or those who personated them, professed to have received it themselves; that is, Æsculapius, Anubis, and Thoth. As to these, who are thus represented as the original authorities for the doctrine; with respect to Æsculapius, we may have something to say in connection with a

\* The original date of Ægon, in the sphere of Mazzaroth, was Dec. 23: after B. C. 672 it became Dec. 22.

The Chaldaic period was more probably 800 years than 640: and the first period of that kind would come to an end B. C. 306. And this is a remarkable coincidence, as we shall see hereafter. From this time, to the age of Columella, would be about 354 years = a recession of 4 degrees complete. The tropical points would now be supposed to be falling in the fourth degrees of the sphere of Mazzaroth. Consequently the winter solstice in the 4th of Ægon, Dec. 25.

This period of 800 years was recognised by Thebeth Ben Corah, as we saw *supra*, p. 446, note.

future calendar. But with respect to Anubis and Thoth, they were both purely Egyptian divinities, and both, in the estimation of the Egyptians, closely connected with the *reason* or *doctrine* of things in the heavens; so much so that, in that specific relation, they were scarcely to be distinguished asunder, and Anubis, as Plutarch tells us, was called Ἑρμάνουβις, or Thoth-Anebo, himself<sup>f</sup>: Ὁ δὲ ἀναφαίνων τὰ οὐράνια καὶ τῶν ἄνω φερομένων λόγος Ἀνουβις ἐστίν, ὅτε καὶ Ἑρμάνουβις ὀνομάζεται, τὸ μὲν ὡς τοῖς ἄνω τὸ δὲ ὡς τοῖς κάτω προσήκον.

It remains then to propose, if possible, some tolerable explanation of so extraordinary a phenomenon as this of the renunciation of all those just views on the subject of astronomy, which the Egyptians had inherited from their ancestors, and of all that traditionary system, so true to nature, and to the actual phenomena of the heavens, in which they had persevered steadily for a thousand years; to substitute for it at last an absurd innovation; which had nothing to recommend it but the imitation and semblance of truth, destitute of the substance and reality.

Now, we have seen reason to conclude that, when the Egyptians conceived and laid down the plan of their Phœnix cycle, they contemplated a great period of 48,000 years, in the course of which the first point of the tropical sphere would be found to have receded through every term in the sphere of Mazzaroth, in order; and to have come back at last nearly to the same position which it had occupied in it at first. We say nearly to the same; because in strictness it would not be found to have returned, even at the end of that period, to the term from which it set out; but to one a certain number of degrees beyond it.

The recession in question, estimated at the rate of three days 21 hours in 500 years, would amount to 31 days in 4000 years. And therefore to  $31 \times 12$ , or 372 days in 48,000 years. Ninety-six times 3h. 21m. too=372 days. Consequently, if the first point in the tropical sphere, at a certain time, began to recede from the 15th in the sphere of Mazzaroth; it is manifest that at the end of 48,000 years it would not be found again in the 15th degree of that sphere, but in the eighth degree; or seven degrees below the 15th. And if it began to recede from April 7 at the beginning of the period,

<sup>f</sup> De Iside et Osiride, lxi.



it would be found at the end coinciding with April 1 or March 31, not with April 7\*.

It would seem then that, if a great period of this kind were supposed to have begun in the  $15^{\circ}$  of the sphere of Mazzaroth, it must be expected to come to an end in the  $8^{\circ}$ . And that being the case, it would evidently be possible that very early in the decursus of such a period, (early at least, in comparison of the length of the period itself,) the beginning of the period might be mistaken for the end—or purposely confounded with the end. It would be found just 1000 years after the beginning of such a period, that the first point of the moveable sphere was coinciding with the eighth of the immoveable one; and it could be found occupying no other position in it even at the end of the period itself. There was consequently a possibility, founded on this very coincidence, that the beginning of such a period (comparatively speaking) might be confounded with the end; and at the distance of a thousand years from the beginning of the period itself, the probability of such a mistake would be very materially increased.

This state of the case began to be matter of fact B. C. 848, at the epoch of the third type of the sphere; and it was still matter of fact B. C. 798. A new theory, and a new doctrine, therefore might possibly be broached at this time, yet founded on the old one itself. It might be pretended at this time, that a great period, such as we have described, was now coming to an end; and that things were returning to their original relations so many thousand years before.

There is no reason why a great period of restitution might not always have been contemplated by the Chaldæans too. If their Phoenix period was one of 800 years; in 48,000 years there would be 60 of these cycles: and as the recession in 800 tropical years, (as it appears from our Table,) amounted

* 4000 yrs. of the standard of our Fasti contain 31 days	
less than 4000 mean Julian years; that is, they contain	1,460,969 days
4000 $\times$ 12 or 48,000 contain	17,531,628
Add	372
	<u>17,532,000 =</u>
= 48,000 mean Julian years; or $365.25 \times 48,000$ .	

It is manifest therefore that at the end of 48,000 years, the epoch would be found to be 372—365 days; i. e. seven days behind April 7; that is, March 31.

to 6d. 4h. 48m. exactly, in 60 such cycles this would amount to 372 days exactly also. It is manifest therefore that this Chaldaic cycle of 800 years, and the Egyptian cycle of 500 years, would be predisposed to be amalgamated with each other; and one in the event would be found to be the same with the other\*.

\* Though there is every reason, in our opinion, to believe that the true date of the astrological system of the Chaldees is that which we have just assigned, the date of their correction of the primitive calendar, B. C. 1106; we cannot forbear to mention a remarkable fact, which, if true, would imply that in one characteristic particular of their system the Chaldees virtually carried it back much further, and even to the earliest possible date of the commencement of sidereal observations among them; which might perhaps go as far back as the epoch of the Dispersion, but could not go further. To explain this however, we must begin with giving some account of the astrological doctrine of the Ὑψώματα and Ταπείνωματα, Exaltations and Abasements, of the sun, the moon, and the planets.

Firmicus, ii. cap. 3. p. 17: Scire etiam debemus quæ sint stellarum altitudines singularum, in quibus naturali quadam sublimitate magnitudinis eriguntur . . . quæve sint earum dejectiones; in quibus constitutæ oppressa auctoritatis suæ potestate minuuntur . . . altitudines autem dictæ sunt ob hoc; quod cum in ipsa parte fuerint stellæ in qua exaltantur, in opportunis scilicet genituræ locis, homines faciunt beatos; dejectiones autem earum faciunt miseros . . . Sol igitur in Arietis parte decima nona exaltatur, in Libræ vero decima nona dejectitur. Luna exaltatur in Tauri parte tertia, in Scorpionis tertia parte dejectitur. Saturnus exaltatur in Libræ parte vicesima, in Arietis rursus decima nona parte dejectitur. Jupiter exaltatur in parte Cancrî decima quinta, dejectitur vero in Capricornî decima quinta. Mars exaltatur in Capricornî parte vicesima octava, dejectitur vero in Cancrî parte vicesima octava. Venus exaltatur in Piscium parte vicesima septima, dejectitur vero in Virginis parte vicesima septima. Mercurius exaltatur in Virginis parte decima quinta, dejectitur vero in Piscium parte decima quinta.

Pliny, H. N. ii. 13: Altera sublimitatum causa: quoniam a suo centro absidas altissimas habent in aliis signis. Saturnus in Libræ parte vicesima, Jupiter Cancrî quintadecima, Mars Capricornî vicesima octava, Sol Arietis decima nona, Venus Piscium vicesima septima, Mercurius Virginis decima quinta, Luna Tauri tertia. Cf. Sextus Empiricus, adv. Astrologos, v. 343. § 355. 36. Martianus Capella, viii. p. 299.

It is clear from these testimonies that the exaltation of the sun was placed in the 19° of Aries, and that of the moon in the 3° of Taurus. Let us attend then in the next place to the explanation of the doctrine, given by Proclus, the commentator upon, or paraphraser of, the Tetrabiblus.

Lib. i. cap. xxii: Τὰ δὲ καλούμενα ὑψώματα τῶν πλανωμένων τοιοῦτον ἔχει λόγον. ἐπειδὴ ὁ ἥλιος ὅταν ἐν τῷ Κριῷ γένηται ποιεῖται τὴν μετάβασιν εἰς τὸ ὑψηλὸν καὶ βόρειον ἡμικύκλιον· ὅταν δὲ ἐν ταῖς Χηλαῖς γένηται ποιεῖται

It follows, on this principle, that if one of these great periods had begun at the same time both in the Egyptian and

τὴν μετάβασιν εἰς τὸ ταπεινὸν καὶ νότιον· τὸν μὲν Κριδὸν ὡς ὕψωμα ἔταξαν, ἐν  
 ᾧ καὶ τὸ μέγεθος τῆς ἡμέρας ἄρχεται καὶ τὸ θερμαντικὸν τῆς φύσεως τοῦ ἡλίου  
 αὖξει. ταπεινῶμα δὲ ἔταξαν τὰς Χηλὰς διὰ τὰ ἐναντία . . . πάλιν, ἐπειδὴ ἐν  
 τῷ ὑψώματι τοῦ ἡλίου, τοῦτ' ἔστιν ἐν τῷ Κριῷ, συνοδεύσασα ἡ σελήνη πρῶ-  
 τὴν ποιεῖται τὴν φάσιν καὶ ἀρχὴν τῆς αὐξήσεως τοῦ φωτὸς καθὼς ἐν τῷ πρώτῳ  
 ζῶδιῳ τοῦ ἰδίου τριγώνου, τοῦτ' ἔστιν ἐν τῷ Ταύρῳ, ὕψωμα μὲν ἐκείνης τοῦτο  
 ἐκλήθη, ταπεινῶμα δὲ τὸ διαμετροῦν, τὸ τοῦ Σκορπίου.

This passage assigns the most natural, and therefore, we do not doubt, the truest explanation of these terms, *ὑψωμα* and *ταπεινῶμα*, applied to the sun; viz. its passage from the south to the north of the equator, and from the north to the south, respectively. Now the former of these takes place at the vernal equinox, and the latter at the autumnal. Though therefore Proclus, in the above, does not specify the degree of the exaltation as well as the sign, he virtually implies it; viz. the first degree of Aries, in the sense of the Aries of the tropical sphere; that degree in which the longitude of the mean sun is  $0^{\circ} 0' 0''$ ; the degree or the point of the ecliptic in which the mean vernal equinox takes place every year.

Now, though this is the true explanation of the *hypsonoma* or exaltation of the sun, it does not follow that the statements which we began with producing, and which dated the article of this exaltation in the 19th of Aries, are in error. It does not appear that on this point the astrologers of antiquity differed among themselves. They all dated the exaltation of Sol in the 19th of Aries, and his abasement in the 19th of Libra. How then is this to be reconciled with the true explanation of those terms?

In the first place, the 19th degree of Aries is to be understood of the 19th degree of the Aries of Mazzaroth. This being so understood, there is no inconsistency in supposing the exaltation of the sun both in the true point of the mean vernal equinox, and yet in the 19th degree of Aries. But here a difficulty of another kind presents itself. When did the true point of the mean vernal equinox fall in the 19th degree of the Aries of Mazzaroth? In the earliest graduation of the tropical in terms of the sphere of Mazzaroth it fell only in the 15th degree of the latter; and the 19th is four degrees beyond that.

Supposing however the date of the first degree of the sphere of Mazzaroth, that is, of the Aries of Mazzaroth, assumed to be March 24 at noon, or at midnight, then that of the 19th degree would be April 11, at noon or at midnight. The date of the mean vernal equinox never fell on April 11 later than the epoch of the Phoenix cycles, B. C. 1847; but it did so some time or other before it. We have seen that in the year of the deluge, and in the year of the descent from the ark, its date was April 12. Consequently, 100 years later, i. e. at or about the date of the Dispersion, it might, or rather it would, be April 11.

Now let us here call to mind the fact which we alluded to obiter, (Diss. ix. ch. iv. sect. iv. vol. ii. 76.) that when Alexander was at Babylon, B. C. 331, the Chaldæans professed to have accounts which went back 1903

in the Chaldæan sphere, in the  $15^{\circ}$  degree; then at the end of the period the first degree of each would be found in the eighth

years. These years being understood of equable years, they must be referred to æra cyc. 3676, Nab. 417, which began Nov. 14, B. C. 332; because it is capable of proof that Alexander came to Babylon before the end of æra cyc. 3676, and left it again not later than the very beginning of æra cyc. 3677. Reckon back 1903 years from æra cyc. 3676, and you are brought to æra cyc. 1773; which began, as our tables shew, Feb. 20, at midnight, B. C. 2233, just 114 years after the descent from the ark, B. C. 2247. In this year, as our tables also shew, the mean vernal equinox was falling April 11, 0 h. 35 m. 38 s. 24 th. for the meridian of our tables; and consequently April 11 1 h. 12 m. 38 s. 24 th. for that of the ancient Babylon: i. e. in the 19th degree of the Aries of Mazzaroth exactly, supposed to bear date at midnight March 24.

It appears further from the testimonies produced *supra*, that the exaltation of the moon was dated in the 3d degree of Taurus. Proclus however assigned the reason why; viz. that supposing it to have been in conjunction with the sun, at the time of the sun's exaltation in Aries, its first phasis or visible appearance would take place in Taurus. Now if the phasis takes place in the 3d degree of Taurus, the moon must be reckoned to be one day old at least in the 3d of Taurus. It moves over  $13^{\circ} 10' 35''$  in one day at present: and we shall see hereafter that the Chaldees reckoned it to do the same in their time. If we go back  $13^{\circ} 10' 35''$  from the end of the 2d degree of Taurus, we come to  $18^{\circ} 49' 25''$  of Aries; at which time on this principle the moon was new, or in conjunction with the sun. Now let this state of the case be referred to the same date as that of the primary exaltation of the sun, in the 19th of Aries, (the Aries of Mazzaroth,) and therefore to April 11, B. C. 2233, æra cyc. 1773. On this principle the moon too must have been assumed to have been in conjunction with the sun not only in the 19th of the Aries of Mazzaroth but also on April 11, B. C. 2233. Our lunar calendar shews that this was the case. The principal new moon, B. C. 2233, bore date April 10 at sunset, and therefore April 11 at midnight.

It appears to us that these four coincidences, the 19th degree of the Aries of Mazzaroth, the true mean vernal equinox, the new moon or conjunction, and 1903 years exactly carried back from æra cyc. 3676, all falling out together in this manner, April 11 B. C. 2233, æra cyc. 1773, could not have been the effect of chance: and therefore that this doctrine of the *Υψώματα* and *Ταπεινώματα*, though possibly broached *de facto* only B. C. 1106, æra cyc. 2901, was purposely attached to the state of the case B. C. 2233, æra cyc. 1773. It does much therefore to confirm the statement, transmitted through Porphyry and Simplicius, that Callisthenes actually found records at Babylon which went back 1903 years; or at least to prove that the Chaldeans must have still preserved an accurate chronology there, which went back to B. C. 2233. The fuller investigation of this point however is necessarily to be reserved for the account of the Babylonian calendar.



degree. The former was actually the relation of the tropical sphere of the Egyptians to the sphere of Mazzaroth, B. C. 798. Those who invented the doctrine in question, among the Egyptians, appear to have taken advantage of this coincidence to combine the Egyptian and the Chaldaic systems; and to form one out of both, neither the same with either, nor yet different from it, yet such as is described or implied in the passage of Theon, which we began with quoting: a system such that the xvth the viiith and the ist degrees in the sphere of Mazzaroth should be fixed and impassable terms; the viiith that from which the recession and procession should begin, and at which they should end perpetually; the xvth the term which the procession should reach, but not pass, on one side of this; and the ist that which the recession should attain to in like manner, but never pass, on the other.

This doctrine and this system was neither the original Egyptian one, nor the Chaldaic. And yet it was not independent of either. It was evidently a modification of both: and if it had any claim to originality, it was in the idea of this combination. And it must be admitted that, supposing the assumptions on which it proceeded to have been true, it would have answered the end proposed by it in an admirable manner. And though no more than an ingenious fiction, totally destitute of foundation, it appears from the testimony of Theon, that the theory and the hypothesis, so introduced, maintained its credit for more than a thousand years; and that there were μαθηματικοὶ even in his time, who received it, and adapted their calculations to it. In fact, in connection with the doctrine relating to the *octava sphaera*, of which all the works on the history of astronomy give an account, it may be said to have retained its hold on astronomers down to the time of Copernicus and Tycho Brahe; the latter of whom, according to Delambre, (*loc. cit. supra*), was the first to disembarass astronomy of it.

There is a singular passage in Syncellus, which after what has been premised may possibly appear significant. He is giving an account of what he calls the Ὀλυμπιάς of the Egyptians; which the context shews to be meant of the cycle of leap-year ε. Οὐκ ἄμουσον δ' αὖν εἶη καὶ τὴν παρ' Αἰ-

γυπτίους περὶ τῶν τετραετηρικῶν Ὀλυμπιάδων ἔννοιαν, ἄλλην τινὰ τῆς παρ' Ἀθηναίοις οὔσαι, ἐν βραχεὶ δηλῶσαι τοῖς ἀγνοοῦσιν. ἡ γὰρ σελήνη παρ' Αἰγυπτίοις κυρίως Ὀλυμπιάς καλεῖται διὰ τὸ κατὰ μῆνα περιπολεῖν τὸν ζῳδιακὸν κύκλον, ὃν οἱ παλαιοὶ αὐτῶν Ὀλυμπον ἑκάλουν. αὕτη γὰρ ἀπὸ Καρκίνου τοῦ ἰδίου οἴκου ὥς ἀπὸ κέντρον προερχομένη τὰ ιβ' κατασπάζεται ζῳδία ἐν νυχθημερίοις κθ' καὶ ἡμίσει καὶ λεπτοῖς λγ' γ'—(in what follows, he describes the octaëteric cycle, ending) πληροῖ οὖν ὁ ἥλιος ἐν Ὀλυμπιάδι μιᾷ τετραετηρικῇ ἡμέρᾳ, αὐξά, ἡ δὲ σελήνη κ, τ. λ. ἐν δὲ Ὀλυμπιάσι δύο γίνονται σελήνια ἴθ' (99) νυχθήμερα δὲ β' ἄκβ' (2922) ἃ καὶ ὁ ἥλιος ἐν τοῖς ἡ' ἔτεσι. καὶ τοιαύτη μὲν ἡ τῶν Αἰγυπτίων δόξα περὶ Ὀλυμπιάδων.

We should have attached less importance to this passage, had it not supposed the constant reckoning of these cycles of Olympiads, both those of the sun in cycles of four years, and those of the moon in cycles of eight, to be dated from Cancer, the house of the moon; and therefore no doubt from her proper position, her normal degree, in that house, the 15th of Cancer. We have seen that at the supposed *natale mundi*, August 8, B. C. 798, both the normal degree of the sun, the xvth of Leo, and that of the moon, the xvth of Cancer, met on the same day, August 8 itself. B. C. 798 was leap-year in the proper cycle of that kind peculiar to the Sothiacal period. The period of 48,000 years is divisible by 8; and therefore is a measure of the octaëteric cycle, a double cycle of leap-years; of which it contains 6000 exactly. Nor would it be without reason, that the peculiar name of Ὀλυμπιάς among the Egyptians should have been given to a cycle of four years, which always bore date from August 8, B. C. 798. The proper epoch of the Olympic cycle itself was attached to the same season of the year; and it must have frequently happened that the proper Olympic cycle, and this Egyptian cycle reckoned from August 8 or 7, were nearly coincident. We may infer then from these coincidences, that the Egyptians must have had a very ancient cycle of leap-year, connected both with the moon, and with the sun, and with some Julian term common to both; which term, under the circumstances of the case, we can scarcely doubt must have been August 8, the supposed *natale mundi*, first introduced into Egypt, and recognised there in that capacity, in B. C. 798.

SECTION VII.—*On the probable date of the astrological system of the Egyptians: and on the Egyptian scheme of the Decani.*

It is an obvious inference from the above premises that, if the Egyptians had among them an astrological system, resembling that of the Chaldees, it was most probably introduced at this time. Whether they had a system of their own, older than that, is a different question. It may be collected from Ptolemy, that something of this kind did actually exist among them, different from the Chaldaic; and therefore more properly Egyptian, and probably more ancient than the system borrowed from the Chaldees: though in what the difference between the two systems consisted we do not pretend to explain, for we have never thought it worth while to inquire.

Περὶ δὲ τῶν ὁρίων, however, observes Ptolemy<sup>h</sup>, δύο μάλιστα φέρονται τρόποι. καὶ ὁ μὲν ἐστὶν Αἰγυπτιακὸς, ὁ πρὸς τὰς τῶν οἰκῶν ὡς ἐπίπαν κυρίας, (lege κυριότητος,) ὁ δὲ Χαλδαϊκὸς, ὁ πρὸς τὰς (τῶν) Δ (τριγῶνων) οἰκοδεσποτίας...τούτων μὲν οὖν τῶν ὁρίων ἀξιοπιστότερα τὰ κατὰ τὸν Αἰγυπτιακὸν τρόπον, καὶ διὰ τὸ τὴν συναγωγὴν αὐτῶν παρὰ τοῖς Αἰγυπτίοις συγγραφεῦσιν ὡς χρησίμην ἀναγραφῆς ἡξιῶσθαι, καὶ διὰ τὸ συμφωνεῖν αὐτοῖς ὡς ἐπίπαν τὰς μοίρας τῶν ὁρίων ταῖς κατατεταγμέναις ὑπ' αὐτῶν παραδειγματικαῖς γενέσεσιν...ἤδη μέντοι περιτετυχήκαμεν ἡμεῖς ἀντιγράφῃ παλαιᾷ καὶ πολλὰ διεφθαρμένῃ περιέχοντι φυσικὸν καὶ σύμφωνον λόγον τῆς τάξεως καὶ τῆς ποσότητος αὐτῶν, μετὰ τοῦ τὰς τε τῶν προγενομένων γενέσεων μοιρογραφίας καὶ τὸν τῶν συναγωγῶν ἀριθμὸν σύμφωνον εὗρίσκεσθαι τῇ τῶν παλαιῶν ἀναγραφῇ, τὸ δὲ κατὰ λέξιν τοῦ βιβλίου πάννυ μακρὸν ἦν, κ' τ. λ.<sup>i</sup>

The thirty-six Decani of the Chaldees must certainly some time or other have been introduced into the Egyptian sphere; and we have little doubt that it was now done, B. C. 798. Μετὰ ταῦτα, observes Origen<sup>j</sup>, φησὶν ὁ Κέλσος τοιαῦτα· Ὅτι μὴν ἐν τοῖσδε μέχρι τῶν ἐλαχίστων ἐστὶν ὅτῳ δέδοται ἐξουσία μάθοι τις ἂν ἐξ ὧν Αἰγύπτιοι λέγουσιν, ὅτι ἄρα τοῦ ἀνθρώπου τὸ σῶμα ἐξ καὶ τριάκοντα διειληφότες δαίμονες ἢ θεοὶ τινες αἰθέριοι εἰς

<sup>h</sup> Tetrabiblus, i. p. 11. περὶ τῶν ὁρίων. Cf. κατὰ Χαλδαίους, p. 12.: also Proclus in Tetrabiblum, i. xxiii.

<sup>i</sup> See Procl. in Tetrab. i. xxiii. ad fin.

<sup>j</sup> Opp. i. 785. B. Contra Celsum,

viii. 58. Cf. Stobæus, Eclogæ Physicæ, lib. i. cap. xxii. περὶ κόσμου, 9. Hermetis: tom. i. 469 sqq. Apuleius, Hermes Trism. ii. 302.

τοσαῦτα μέρη νενεμημένον, (οἱ δὲ καὶ πολὺ πλείους λέγουσιν,) ἄλλος ἄλλο τι αὐτοῦ νέμειν ἐπιτέτακται. καὶ τῶν δαιμόνων ἴσασι τὰ ὀνόματα ἐπιχωρίῳ φωνῇ, ὥσπερ Χνουμήν, καὶ Χναχουμήν, καὶ Κνὰτ, καὶ Σικὰτ, καὶ Βίον, καὶ Ἑρὸν, καὶ Ἑρεβλόν, καὶ Ῥαμανὸρ, καὶ Ῥειανὸρ, ὅσα τε ἄλλα τῇ ἑαυτῶν γλώσσει ὀνομάζουσι, κ', τ. λ. Though these are not expressly called the Decani, their number implies them to be intended of the Decani: and Salmasius has shewn<sup>k</sup> that the names here enumerated are actually those of some of the Decani among the Egyptians, recoverable from Firmicus, from Hephæstio Thebanus, and from other sources.

The names and order of these Egyptian Decani were recited by Firmicus; and no doubt in the original edition of his work correctly: though in the shape in which they have come down to us, and are now read in his text, they are much corrupted. Yet it is necessary to quote this account, corrupt as it is, in order to see in what manner these Decani were connected with the different signs; from which it will appear, that though a third part of every sign was nominally awarded to the same Decan, yet strictly speaking only a certain number of degrees in each were under his personal jurisdiction and superintendence; which, on that account, were called *Plenæ*; the rest, in contradistinction to these, as being unoccupied and unrepresented by any of the Decani, being termed *Vacuæ*.

Triginta sex itaque Decani, says he<sup>l</sup>, omnem zodiaci possident circulum: ac per xii signorum numerum deorum seu Decanorum hæc multitudo dividitur. sed cum sint in signis singulis terni decani non in omnibus triginta partibus eorum est numen constitutum; sed per singula signa terni Decani quasdam partes possident, quasdam vero reliquerunt. plenæ sunt itaque partes in quibus Decani fuerint inventi; vacuæ vero ad quas nunquam Decanorum numerus accedit.

Explicabo itaque partes plenas et vacuas. . . . Decanorum etiam nomina Ægyptio sermone proferam. . . ab Ariete potissimum exordium facientes. . . illæ enim partes sunt plenæ in quibus Decanorum nomina inveneris; vacuæ vero quas. . . . Decani penitus reliquerint.

<sup>k</sup> De Annis Climactericis, 610-613.

<sup>l</sup> Lib. iv. cap. xvi. 107.



Number, order, and names of the Egyptian Decani, in the different signs of the sphere, beginning with Aries, according to Firmicus<sup>k</sup>.

Planets.	Signs.	Vacue.	Planæ.	Decani.
March 24				
Mars	Aries ..... i	3	Primæ 5	Asiccan
Sol	..... ii	9	5	Senacher
Venus	..... iii	6	4	Acentacer
		18	(12) 14	
April 24				
Mercury	Taurus ..... i	3	Primæ 8	Asicath
Luna	..... ii	2	8	Viroaso
Saturn	..... iii	5	4	Aharph
		10	20	
May 24				
Jupiter	Gemini ..... i	2	Primæ 7	Thesogar
Mars	..... ii	3	Primæ 5	Verasua
Sol	..... iii	7	Primæ 6	Tepisatosoa
		12	18	
June 24				
Venus	Cancer ..... i	6	Primæ 6	Sothis
Mercury	..... ii	2	4	Syth
Luna	..... iii	2	9	Thuimis
		1	—	
July 25				
Saturn	Leo ..... i	3	Primæ 7	Aphruimis
Jupiter	..... ii	6	Primæ 4	Sithacer
Mars	..... iii	—	10	Phuonisie
		9	21	
August 24				
Sol	Virgo ..... i	5	Primæ 4	Thumis
Venus	..... ii	2	6	Thopitus
Mercury	..... iii	6	—	Aphut
		3	4	
		16	14	
September 23				
Luna	Libra ..... i	8	Primæ 5	Serucuth
Saturn	..... ii	8	Primæ 3	Aterechinis
Jupiter	..... iii	3	Primæ 3	Arepien
		19	11	
October 23				
Mars	Scorpio ..... i	3	5	Sentacer
Sol	..... ii	6	6	Tepiseuth
Venus	..... iii	2	5	Senciner
		3	16	
		14	—	
November 23				
Mercury	Sagittarius .... i	3	Primæ 8	Eregbuo
Luna	..... ii	4	Primæ 8	Sagen
Saturn	..... iii	—	7	Chenen
		7	23	
December 23				
Jupiter	Capricornus. .... i	7	3	Themeso
Mars	..... ii	5	4	Epima
Sol	..... iii	5	6	Homoth
		17	13	
January 22				
Venus	Aquarius ..... i	4	5	Oroasoer
Mercury	..... ii	4	6	Astiro
Luna	..... iii	3	8	Tepisatras
		11	19	
February 21				
Saturn	Pisces ..... i	6	6	Archatapias
Jupiter	..... ii	3	4	Thopibui
Mars	..... iii	6	3	Atembui
		2	—	
		17	13	

<sup>k</sup> Cf. also Scaliger's *Manilius*, p. 487.

We shall not attempt any explanation of these names; which are so corrupt in comparison of their original form as to be well calculated to perplex the best Coptic scholars of the present day: and we shall produce by and by an amended, and much more genuine, list of the same names, taken from the late publication of the Chevalier Lepsius.

We shall observe, on this account of Firmicus, only i. That with respect to the distinction of the parts of every decad of the sphere, in connection with the Decani, into *plenæ* and *vacuæ*, it must of course be understood of the *parts* of the *signs*, that is of the *degrees* of the *sphere*; not of the days of the month by which also those degrees might be represented. No sign could contain either more or less than 30 degrees: but some of them must contain 31 days. No decad or third part of the sign could contain either more or less than ten degrees; but some decads of the signs must have eleven days. None of the Decani then could have either more or less than ten degrees; but some of them must have eleven days, while the rest had only ten.

ii. The numbers, which represent the proportion of the full and the empty parts in each of these instances, are evidently corrupted: yet we may take it for granted that, though the number of such parts of either kind in each instance could not be the same, it must have followed the same general rule in all; and that rule such, that the sum of full and empty parts together must have amounted to *ten* in each decad, and to *thirty* in each sign. And it appears from the inspection of the scheme itself, that the last fact holds good of the proportion between them in seven signs out of twelve, even as the numbers stand at present. The full parts in each instance ought to be the complement of ten on the empty ones, and that of the empty the complement of ten on the full, in the decad; and the sum of full parts should be the complement of thirty on the sum of the empty, in the sign, and *vice versa*. On this principle, it would be both allowable and easy to correct the numbers of Firmicus, to make them agreeable to such a rule: and it would be seldom necessary to alter both at once; that is, both the specified number of the full and that of the empty parts, at the same time.

iii. With respect to the order or alternation of these full

and these empty parts; it does not appear that it followed any definite rule. It is observable however that in some of these instances, such and such of the *partes primæ* are specified as the full; and consequently the latter parts are to be supposed the empty: and from this distinction it may perhaps be inferred that, in the remaining cases, in which no such specification occurs, the first parts, as a general rule, are to be considered the empty, and the latter the full, ones.

iv. This enumeration in Firmicus begins with Aries; though, after what has been explained, it cannot admit of a question that the actual division of the sphere among these Decani must have begun in Leo. But the Egyptian sphere, as we have seen, was always reckoned from Aries. Macrobius, as we have also seen<sup>1</sup>, was at much pains to explain why this should be the case, even when the *natale mundi* itself was dated in a different sign. This is sufficient to account for the order of the enumeration in Firmicus.

v. It is observable that the names of the three Decani of Cancer, in his list, are Sothis, Syth, and Thuimis. The names of the same three in Hephæstio Thebanus are Σοθις, Σιτ, and Κνουμῖς: and no doubt Knoumis was the original reading in the third of these instances in Firmicus; particularly as Thumis occurs again in his list, as the name of the first of the Decani of Virgo. Khnoumis was the name of one of the gods of the Egyptians<sup>n</sup>, and most proper to the Thebaid; who could not be older than their Osiris and Isis, nor in fact so old as they. Sit appears to be the same with Seth; the most proper name of Typhon among the Egyptians: and Sothis was the name of Sirius or the dog-star. There can be no doubt that Sirius or Sothis had always a particular connection with Cancer; especially in the sphere of Mazzaroth, in which the Julian limits of that sign were June 24 and July 24 each inclusive. Both the cosmical and the heliacal rising of Sirius necessarily fell in this sign. It is not certain too that Typhon or Seth himself was not connected with the same season of the year, through some tradition relating to the dog-days in Egypt<sup>n</sup>. And these coin-

<sup>1</sup> Supra, p. 451.

<sup>m</sup> Bunsen, b. i. sect. vi. A. iii. p. 374.

Birch, p. i. p. 9.

<sup>n</sup> Plutarch, De Iside et Osiride, lxxiii.

cidences must do much to prove that this scheme and this nomenclature of the Decani among the Egyptians could not be older than the Sothiacal period. And in reality, if it was actually first introduced in B. C. 798, it was 552 years later.

We shall conclude then with proposing an amended list of these names, including not only the Greek names of Hephæstio Thebanus, but the Egyptian ones recovered from the monuments and the hieroglyphic sculptures; on five of which they have been discovered. This list we borrow from the late publication of the Chevalier Lepsius, entitled *Die Chronologie der Ægypter*, Berlin, 4to, 1849.

*Synopsis of the names of the Decani from Hephæstio Thebanus and the monuments.*

Signs.	Decani.	Salmasius.	Hergestellter Text.	Hieroglyphical.
Cancer	i	Σωθίς	Σωθίς	Suti
	ii	Σίτ	Σίτ	Sit
	iii	Χνουμς	Γνουμς or Κνουμς	Knemut & Knem
Leo	iv	Χαρχνουμς	Χαρχνουμς	Cher-knemut & Cher-Knem
	v	Ἡπή	Ἡτήτ	He-tet
Virgo	vi	Φουπή	Φουτήτ	Pehu-tet
	vii	Τώμ	Τώμ	Tum
	viii	Οὐεστευκατί	Οὐεστε-Βκατί	Beshti-Bkati
Libra	ix	Ἀφοσό	Ἀφοσό	Apeset
	x	Σουχωέ	Σουχωέ	Sebch?
	xi	Πτηχουτί	Τπη-φόντ	T'ape-fent
Scorpio	xii	Χονταρέ	Φονταρέ	Fent-her
	xiii	Στωχνηνέ	Τσoχνε-(φόντ)	Tsechne-fent
	xiv	Σεσμέ	Σεσμέ	?
Sagittarius	xv	Σειμέ	Σεσιμέ	?
	xvi	Ῥηουώ	Ῥηουώ	Herhet-ua
	xvii	Σεσμέ	Σεσμέ	Schesmu
Capricorn	xviii	Κοιμέ	Κοιμέ or Γοιμέ	Kenemu
	xix	Σμάτ	Σμάτ	Smat
	xx	Σρώ	Σρώ	Sra
Aquarius	xxi	Ἰσρώ	Ἰσρώ	Sira
	xxii	Πτιαύ	Τπη-χύ	T'ape-chu
	xxiii	Ἀεύ	Χύ or Χεύ	Chu
Pisces	xxiv	Πτηβουού	Τπη-βίου	T'ape-be'u
	xxv	Ἀβιού	Βίου	Be'u
	xxvi	Χονταρέ	Φονταρέ	Fent-her
Aries	xxvii	Πτιβιού	Σβίου	.. be'u
	xxviii	Χονταρέ	Φονταρέτ	Fent-herhet
	xxix	Χονταχρέ	Φονταχρέ	Fent-cher
Taurus	xxx	Σεκέτ	Σεκέτ	Seket
	xxxi	Χώου	Χώου	Cho'u
	xxxii	Ἐρώ	Ἐρώ	Ar
Gemini	xxxiii	Ῥομβόμαρε	Ῥομβόμαρε	?
	xxxiv	Θοσόλκ	Θοσόλκ	Teselk
	xxxv	Οὕαρε	Οὕαρε	Uar
	xxxvi	Φουόρ	Φουόρ	Pehu-her.



SECTION VIII.—*Confirmation of the preceding conclusions by the date of the imposition of the planetary names on the feriæ of the hebdomadal cycle ; viz. B. C. 798.*

Whether the ancient Egyptians could be supposed to have retained the hebdomadal cycle among them from the first or not, it would be utterly incredible that after it had become a characteristic observance of the Jews, their nearest neighbours, with whom they kept up a constant intercourse, they should not have known of its existence long before B. C. 798. It would be incredible too that, if the Egyptians knew of the existence of this cycle among the Jews, they should not have known in what manner it was reckoned among them ; and that the *feria prima* was the beginning or head of the reckoning perpetually, and the *feria septima* the end of it : though, if they knew any thing about the rule of the sabbath among the Jews, they could not but know that the most sacred day of the cycle was the *seventh*, and not the *first* ; i. e. the day on which it ended, not that on which it began.

We had occasion to explain in a former part of our work<sup>p</sup>, by what particular process, or according to what particular rule, the planetary names, which the feriæ of the hebdomadal cycle still retain, came to be assigned them at first ; and it was evident from that explanation, that in that particular process the seventh feria of the cycle, and not the first, must have been considered and treated as the proper head of the cycle itself. And this would be an extraordinary and an inexplicable phenomenon, could it be supposed that the seventh feria was mistaken for the first ; and that it was substituted for it through ignorance of the real order of the terms of the cycle : but not, if it was purposely treated as the first out of deference to its superior sanctity, and under an idea that the most sacred term of the cycle was naturally the most important, and the fittest to be considered and treated as the first.

It appeared also from that explanation, that the name given to the seventh day of the cycle was that of the planet Saturn ; that is, the name of the highest or most superior of the planets, known to the ancients, and according to the

astrological system of the Chaldæans, as we were informed by Diodorus, the most powerful and influential of all, was assigned to the most sacred term of the hebdomadal cycle. And it appeared too that it must have been assigned to it *extra ordinem*; i. e. both prior to and independent of the process by which the proper planetary name was awarded to each of the other terms of the cycle. It is manifest at least, with regard to the details of such a process, that it must have begun with assuming the first hour of the seventh feria, and therefore the seventh feria itself, to be already sacred to Saturn; before it had yet been ascertained by virtue of this particular process to which of the planets the first hour of the next feria, and therefore that feria itself, was to be appropriated.

We declared our opinion, at that time, that the planetary names were imposed on the days of the weeks by the Egyptians; and in this year, B. C. 798. We shall now proceed to the proofs of the truth of that assertion: and there are two, which we think are sufficient to establish it.

The first is that in this very year, B. C. 798, when the doctrine which we have hitherto been employed in explaining, relating to the birth of the world on August 8, and to the new theory of precession, and of the alternate recession and advance of the tropical points on the sphere of Mazzaroth, was first broached in Egypt; and when the astrological system of the Chaldees appears to have been introduced among the Egyptians, or one of their own to have been invented which was only a modification of it: August 8, the principal term in this system, both as the supposed date of the *genitura mundi*, and as the representative of the middle term between the first and the fifteenth degrees of the sphere of Mazzaroth, was actually falling on the *feria septima* of the hebdomadal cycle: for the Dominical Letter of the year being D, August 8 was the *feria septima* or Saturday.

If then it was thought proper, for any reason, to impose the names of the planets at this time on the days of the week, and to begin with the most superior of all, and to attach its name to the principal and most important of the *feriæ* of the week; it is evident that, at this particular juncture, that might be done without any disturbance of the order of the

cycle. The seventh day of the existing cycle might be at once dedicated to the planet Saturn, by a positive appointment, and receive its name; as it must have been dedicated and must have received its name some time or other, independent of the rule which awarded the rest of the days to the rest of the planets: and yet every thing connected with the cycle itself would be left to go on as it was going on before.

The second of our proofs is this. The sun and the moon and the five planets, which have given their names to the *feriæ* of the hebdomadal cycle, being always situated and always moving in the ecliptic or in the zodiac, must necessarily and at all times be in some sign or other; and at different times in every sign. For the same reason they must be, at all times, in some decad or other of some one of the signs; and at different times must be in every decad of every sign. Now Firmicus tells us that, in the astrological system of which we have been speaking, provision was made for these contingencies also; and that as any one of these erratic bodies happened to be situated in any one decad of the sphere, that is, within the limits of the proper jurisdiction of some one of the Decani, the decad became subject or proper to the planet, just as if the planet had no connection with any part of the sphere but that decad; or the Decania of the sphere had no connection with any thing but the planets which were occupying such and such decads for the time. Sed et ipsi Decani singulis stellis (i. e. planetis) deputantur. et cum in ipso Decanio stella fuerit, licet sit in alieno domicilio, sic tamen est habenda quasi in suo sit domicilio constituta. suo enim in Decanio posita hæc eadem perficit quæ in suo signo constituta decernit<sup>9</sup>.

And yet this appropriation of the Decani, or of the Decania, to the planets followed a very peculiar rule. It might have been expected that, in assigning to the planets the different decads of the sphere, they would be taken either in the descending order, beginning with Saturn as the highest, or in the ascending, beginning with the moon as the lowest: and yet the actual order (as it appears from the enumeration of the succession itself in Firmicus<sup>r</sup>) was that of Saturn, Ju-

<sup>9</sup> Lib. ii. iv. p. 17.

<sup>r</sup> See the scheme, p. 485.

piler, Mars, Sol, Venus, Mercury, Luna, perpetually; which is neither the former nor yet the latter, but something different from both<sup>s</sup>.

To make these distinctions however intelligible, and to prepare the way for the inference deducible from them of the connection between the names of the planets and the *feriæ* of the hebdomadal cycle, implied in these distinctions themselves; we have no alternative except that of exhibiting the actual scheme of the intermixture and alternation of planets and Decania all round the sphere. Only it is necessary to premise, that we suppose ourselves bound to begin it, and to trace it, not in the tropical sphere, but in the sphere of Mazzaroth; and not from Aries or Krion even in that sphere, where Firmicus begins it, but from Leo or Leonton, and from the middle decad of Leo or Leonton too; to which the *natale mundi* itself, and the *κέντρον κινήσεως* or *primum mobile* of every thing subsequent to that, and dependent upon it ever after, according to the principles and assumptions of this system, must be considered to have been originally determined.

*Scheme of Decania, and of the planets to which they belonged, from the second decad of Leonton, in the sphere of Mazzaroth, B. C. 798, to the same again, B. C. 797.*

Leonton 30 days, July 25—Aug. 23 B. C. 798 Dom. Let. D.

De- cania	Degrees or Days.		Feria.	Planets.	Feria.		
i	10	July . . . 25	7	Luna	2 1	July . . . 27	B. C. 798
ii	10	August. . 4	3	Saturn	7 6	August. . 8	
iii	10	August. . 14	6	Jupiter	5 4	August. . 20	

Parthenon 30 days, August 24—Sept. 22

i	10	August. . 24	2	Mars	3 2	August. . 25
ii	10	Septemb. 3	5	Sol	1 7	Septemb. 6
iii	10	Septemb. 13	1	Venus	6 5	Septemb. 18

<sup>s</sup> This is the reverse of the order in which Nonnus enumerated them *supra*, (p. 450.) in connection with the gates

of Thebes: that is, it is his order read backwards.



## Zygon 30 days, September 23—October 22

Decania	Days.		Feria.	Planets.	Feria.	
i	10	Septemb. 23	4	Mercury	4	Septemb. 23
					3	
ii	10	October. . 3	7	Luna	2	October. . 5
					1	
iii	10	October 13	3	Saturn	7	October 17
					6	

## Scorpion 31 days, Oct. 23—Nov. 22

i	11	October 23	6	Jupiter	5	October 29
					4	
ii	10	November 3	3	Mars	3	Novemb. 3
					2	
iii	10	Novemb. 13	6	Sol	1	Novemb. 15
					7	

## Toxon 30 days, Nov. 23—Dec. 22

i	10	Novemb. 23	2	Venus	6	Novemb. 27
					5	
ii	10	Decemb. 3	5	Mercury	4	Decemb. 9
					3	
iii	10	Decemb. 13	1	Luna	2	Decemb. 14
					1	

## Ægon 30 days, Dec. 23—Jan. 21 B. C. 797 Dom. Lett. C B.

i	10	Decemb. 23	4	Saturn	7	Decemb. 26
					6	
ii	10	January 2	7	Jupiter	5	January 7
					4	
iii	10	January 12	3	Mars	3	January 12
					2	

## Hydron 31 days, Jan. 22—Feb. 21

i	11	January 22	6	Sol	1	January 24
					7	
ii	10	February 2	3	Venus	6	February 5
					5	
iii	10	February 12	6	Mercury*	4	February 17
					3	

## Iethyon 31 days, Feb. 22—March 23

i	11	February 22	2	Luna	2	February 22
					1	
ii	10	March .. 4	6	Saturn	7	March .. 5
					6	
iii	10	March .. 14	2	Jupiter	5	March .. 17
					4	

\* Achilles Tatius, *Isagoge ad Aratum*, § 17. *Uranologium*, 136 B—D. Mercury, it is said, was styled by the Egyptians Ἀπόλλωνος ἀστὴρ; that is, the star of Horus. His proper Decan in Aquarius, we see, extended from Feb. 12—21: within which fell the supposed assumption of the double crown of Egypt by Horus. See *supra*, note at p. 414.

## Krion 31 days, March 24—April 23

Decania	Days.		Feria.	Planets.	Feria.	
i	10	March .. 24	5	Mars *	3	March .. 29
					2	
ii	10	April .. 3	1	Sol	1	April .. 3
					7	
iii	11	April .. 13	4	Venus	6	April .. 15
					5	

## Tauron 30 days, April 24—May 23

i	10	April .. 24	1	Mercury	4	April .. 27
					3	
ii	10	May .... 4	4	Luna	2	May .... 9
					1	
iii	10	May .... 14	7	Saturn	7	May .... 14
					6	

## Didymon 31 days, May 24—June 23

i	11	May .... 24	3	Jupiter †	5	May .... 26
					4	
ii	10	June .... 4	7	Mars	3	June .... 7
					2	
iii	10	June .... 14	3	Sol	1	June .... 19
					7	

## Karkinon 31 days, June 24—July 24

i	11	June .... 24	6	Venus	6	June .... 24
					5	
ii	10	July .... 5	3	Mercury	4	July .... 6
					3	
iii	10	July .... 15	6	Luna	2	July .... 18
					1	

## Leonton 30 days, July 25—Aug. 23

i	10	July .... 25	2	Saturn	7	July .... 30
---	----	--------------	---	--------	---	--------------

The inspection of this scheme must satisfy any one that it was an artificial one, and was so arranged on purpose. For it appears that, if we trace it forwards from the second Decan of Leonton and from the *feria septima*, as represented by the planet Saturn; in the next Decan we find the *feria* dropping from the *septima* to the *quinta*, and the order of planets from Saturn to Jupiter: the former of which planets in the hebdomadal cycle is the representative of the *feria septima*, and the latter is that of the *feria quinta*: so that to pass from

\* Mars, in like manner, was styled 'Ηρακλέους ἀστήρ; that is, the star of Khons, the Egyptian Hercules Lunus. We shall see, by and by, that Hercules Lunus had a special connection, through the lunar mansions of the last revision, with the first Decan of Krion or Aries.

† Achilles Tattius, ut supra. Jupiter, in like manner, was called 'Οσίριδος ἀστήρ. He had the first Decan of Didymon; and this month was eminently sacred to Osiris and Isis, being called Didymon after them.

Saturn to Jupiter in the order of planetary names is absolutely the same thing as to pass from the *feria septima* to the *feria quinta* in the order of the hebdomadal *feriæ*: and *vice versa*. No one, we think, could doubt that this must have been designedly done in each instance; in order that these things might thus correspond one to the other. Again, in the next decad, we find the planetary names descending from Jupiter to Mars, and the order of *feriæ* from the *feria quinta* to the *feria tertia*; either of which, in its proper order, is absolutely the same thing as the other. And in the next to this, we find the planetary cycle dropping from Mars to Sol, and the hebdomadal from the *feria tertia* to the *feria prima*; one of which, *mutatis mutandis*, is the same thing as the other. In short, we find this going on, in the same way, through every decad of every sign in succession, from the point where we began to trace it, until we come round to the same point again; a fresh planetary name connected with every fresh decad, in the order above specified, Saturn, Jupiter, Mars, Sol, Venus, Mercury, Luna; and a fresh *feria* of the hebdomadal cycle, the same which is represented by the planetary name in question, (the first which could answer to it in the given decad,) entering the decad along with it also. So that if we read the names of the planets in this scheme, either backwards or forwards, they are to be read either way in the order above assigned; and if we trace the *feriæ* either upwards or downwards, they proceed in the same manner, parallel to the order of the planets. It would be the height of scepticism therefore to doubt whether each of these schemes was not purposely so arranged, in order to correspond to the other; or, what comes to the same thing, (though we ourselves have supplied the *feriæ* in one of these successions, and Firmicus the planetary names in the other,) that the latter could ever have been disposed, as they are seen to be, in each of the decads, except as the representatives of the former in that particular situation in the decads also.

There cannot consequently be any reasonable doubt, that whosoever were the authors of this planetary cycle, as attached to the corresponding cycle of Decania, they must have been well acquainted with the hebdomadal cycle, and with

the order and succession of *feriæ* in that ; an order and succession, which it is manifest they could not have had the least intention of disturbing by this connection of their planetary cycle with the hebdomadal cycle ; but which, it is also evident, they must have considered, for some reason or other, indissolubly associated with the order of this planetary cycle also ; so that the first term in the hebdomadal cycle and the sun in the planetary cycle ; the second in the former and the moon in the latter, and so on with the rest in each cycle, must correspond one to the other perpetually. Consequently the *feriæ* of the hebdomadal cycle must already have received their planetary names, before this combination of the two cycles, one with the other, was made ; or must have been so called, for the first time, when they were thus connected with this cycle of planets for the first time also.

Moreover since, according to Firmicus, the planet Mars and the first decad of Aries were inseparably connected in these two schemes, so much so that he begins his enumeration of the planetary cycle, in the order of Decania, from the first Decan of Aries itself ; this is demonstrative that both cycles in reality must have set out at first, as we have supposed they did ; the planetary cycle from Saturn, the cycle of Decania from the second of Leonton, August 8, B. C. 798. Had the former set out from Saturn, and the latter from the first Decan of Leonton, then Mars and the first Decan of Aries could not possibly have been found united ; but Mars and the third Decan of Ichthyon. And if the former had set out with Saturn in the third Decan of Leonton, then Mars would have been found in the second Decan of Aries, not in the first. In short, under no circumstances could Mars have been found in the first Decan of Aries, except those of our scheme ; which supposes Saturn to be already constituted in the second Decan of Leonton, when this cycle of planets and Decans itself first begins.

It is evident also, from the scheme proposed, that as one planet only is found in any one decad of the sphere, at a given time, and there are 36 decads in the sphere, and only 7 planets ; the planetary cycle must enter the cycle of decads five times in every complete circle of the sphere ; and



the first term in the sixth planetary cycle must coincide with the 36th Decan perpetually. Hence if this cycle began with Saturn, in the 2nd decad of Leonton, B. C. 798, it would end with Saturn in the 1st decad of Leonton, B. C. 797. It follows that, in every revolution of the sphere, the cycle of planets must fall back one decad in the cycle of decads perpetually; yet without any disturbance of the order of the terms in that cycle, one in comparison of another, or in the order of *feriæ*, in the hebdomadal cycle which accompanied it perpetually.

As this was a consequence, inseparable from the relation of two such cycles as one of seven terms and another of thirty-six terms respectively; we must suppose that it was foreseen, and was both expected and intended to take place. It is evident too, that this very recession of the planetary cycle in the cycle of Decania, and of decads, in the course of time would have the effect of bringing back the planetary cycle to the same term in the cycle of decads from which it set out at first; that is, of restoring the original relation of the cycles one to the other periodically, or after a stated interval of time.

The question is only concerning this interval of time. With respect to which, it is manifest that a given planet, (like Saturn,) would return to a given Decan (like the second Decan of Leonton) in 36 years; because, as it fell back one Decan every year, and there were only 36 in all, it must recede through them all in 36 years. The period then, which would bring back each planet, in such a combination of planets and Decans as this, to its proper Decan, (the Decan with which it was combined at first,) would be comparatively short; a period of 36 years and no more. But if each planet must return not only to its original Decan, but to its original *feria* in that Decan, (the *feria* represented by its own name,) and to the original Julian term to which they were both attached at first; it is manifest that that would require a much longer period; a period which, estimated in mean Julian years of uniform character only, could not be less than  $36 \times 28$ , or 1008 Julian years; in which too, there would be 126 cycles of eight years, such as appear to have been connected with this same date of August 8, from the first.

With such a Julian year however as that of our Fasti, even this period would be much too little to bring about the restitution in question. Nor could it be effected except by means of a period, which should combine both the measure of the cycle of Decans, 36, and what we have termed ourselves the period of the hebdomadal restitution in the mean natural year of our Fasti<sup>t</sup> considered as the same with the mean Julian perpetually; that is, a period of 896 years at least. Now  $896 \times 36 = 32,256$ . And from the magnitude of this period we may safely draw the inference, that the coincidence, which actually held good B. C. 798, when the first term in the planetary cycle, (Saturn,) and the seventh in the hebdomadal, and the first degree in the second Decan of Leonton, all met together on the Julian August 8, in the proper leap-year of the Sothiacal period, could not have been in any sense an ἀποκατάστασις, i. e. a return of all these cycles to their original relations. It might be the beginning of a period even like this; but it could not possibly have been the renewal of one which had just come to an end. This year therefore, B. C. 798, actually distinguished by this coincidence, is the first of which it could possibly have held good. If so, we cannot hesitate to conclude that it must have been the year in which the planetary cycle, and the hebdomadal cycle, and the cycle of Decania in the sphere of Mazzaroth, were all adjusted to each other for the first time, through this common term of August 8: and therefore that this too must have been the year, and this the time of the year, when planetary names were first imposed on the feriæ of the hebdomadal cycle, such as they have retained ever since\*.

\* It cannot be necessary to explain for the satisfaction of any of our readers that this supposed cycle of planets, among the decads or Decania of the sphere, was a purely arbitrary and hypothetical thing. The planets in themselves had a real existence, the decads of the sphere might be considered realities too; but this cycle of the former in the latter perpetually was a mere astrological fiction, a cycle of names and ideas, not of things or realities. Such however was the nature of the astrological system of antiquity in general; a system of names and abstractions not of things; and therefore this is no objection in the present instance. The planets by some chance might be disposed at a given time among the different decads of two or three given signs, as this theory supposes; but they could

<sup>t</sup> Supra, Diss. vi. ch. iv. sect. xii. vol. i. p. 496.

## CHAPTER IX.

*Resumption of the subject of the lunar mansions.*SECTION I.—*On the period of 500 years, tropical Julian and sidereal; and on the mean lunar standard peculiar to it.*

IT has been already observed<sup>u</sup> that, when the Egyptians conceived the idea of their Phœnix period, they appear to have projected a grand and gigantic scheme, extending far into the future, and destined to embrace a continuous series of observations of the solar, the lunar, and the sidereal momenta for an indefinite length of time; the parts or divisions of which were intended to consist of their own Phœnix cycle and its proper period. It entered into the order and method proposed to be observed in this scheme, that the solar the lunar and the sidereal momenta should be laid down, as they were in themselves, and as in comparison one of another, at the beginning of every period of this kind; every 500 mean tropical, 500 mean Julian, 500 mean sidereal years; and also of every corresponding number of mean lunar years in the sense of mean synodic revolutions, whatsoever that was: and that this having been done once and for the first time at the epoch of the first Phœnix cycle, B. C. 1847, it should be repeated at that of the next, B. C. 1347; and should continue to be repeated in the same way every 500 years, down to the completion of the great period of 48,000 years, or 96 Phœnix cycles.

This period of 500 years has never yet been particularly analyzed even by chronologers, much less by astronomers; though its known or supposed connection with the Phœnix cycle of antiquity has always made it an object of interest to both. And yet, when it comes to be examined, it turns out not be so all round the sphere in any given year, much less in one year after another perpetually. They were represented in this system solely by their names: and *their* names admitted of being associated with *other* names, and of circulating in conjunction with them, subject to any law perpetually.

<sup>u</sup> Supra, ch. iv. sect. viii. p. 303, 304.

to be a remarkable period ; a period well adapted at all times for the constant comparison of mean tropical, mean Julian, and mean sidereal time, (especially according to the standards of the first and the last respectively, which are assumed in our Fasti,) and, at the particular epoch of B. C. 1847, even for the comparison of mean lunar time with mean solar (in the sense of mean tropical and of mean Julian alike), after a manner which could scarcely have been imagined *a priori*.

In this period according to the standards which we have assumed, we have

		d.	h.	m.	s.
500 mean sidereal years	=	182 628	4	19	43·727
500 mean Julian years	=	182 625	0	0	0·0
500 mean tropical years	=	182 621	3	0	0·0

we have consequently,

The excess of 500 mean sidereal years over 500 mean tropical	}	=	7	1	19	43·727
The excess of 500 mean sidereal years over 500 mean Julian	}	=	3	4	19	43·727
The excess of 500 mean Julian years over 500 mean tropical	}	=	3	21	0	0·0

And these quantities, it is evident, bear a definite proportion one to another, such that mean Julian time in particular, in such a combination of all three together perpetually as this, is almost a mean between mean tropical and mean sidereal ; being invariably 3 d. 21 h. greater than the former, and only 3 d. 4 h. 20 m. at the utmost less than the latter.

But the most remarkable property of the period is that which begins to appear on comparing mean lunar time with mean tropical, and mean Julian, through a succession of periods of this kind. And though, from the nature of the case, no such property could characterise either this or any similar period perpetually, yet if it did actually characterise this particular period B. C. 1847, and if the fact of such a property, once discovered at that time, and actually holding good at the time, might very reasonably be supposed capable of holding good perpetually ; nothing more would be necessary to point out and to designate *this* as the most proper period, above all others, for the constant comparison of mean lunar time with mean solar, in the sense both of mean natural and of mean Julian.



In the first place, the number of integral lunar months which can enter into one of these periods of 500 years, whether mean tropical, mean Julian, or mean sidereal, is the same; viz. 6 184.

In 304 mean Julian years we have 3 760 lunations.

In 190 .. .. we have 2 350 ..

In 6 .. .. we have 74 ..

In 500 .. .. we have 6 184 ..

Secondly, in this number of mean lunar months, (mean synodic revolutions of the moon,) according to the standard of our Fasti, we should have

182 617 d. 3 h. 19 m. 8 s. 56<sup>th</sup> .170 \*

of mean solar time: and this would approximate closely to 182 617 d. 6 h. of mean solar time exactly. The difference, in fact, is only 2 h. 40 m. 51 s .06.

$$\begin{array}{r}
 \text{h. m. s.} \\
 6 \quad 0 \quad 0.0 \\
 - \quad 3 \quad 19 \quad 8.936 \quad 166 \quad 6 \\
 \hline
 2 \quad 40 \quad 51.063 \quad 833 \quad 4
 \end{array}$$

This difference = 9651 s .063 833 4: and if we divide it by 6184, the amount of the difference on each lunation is 1 sec .560 650 68.

Now the mean lunar standard of our Fasti is

$$\begin{array}{r}
 \text{d. h. m. s.} \\
 29 \quad 12 \quad 44 \quad 2.553 \quad 191 \quad 5 \\
 \text{Add ..} \quad \quad \quad 1.560 \quad 650 \quad 68 \\
 \hline
 \text{The sum is} \quad .. \quad 29 \quad 12 \quad 44 \quad 4.113 \quad 842 \quad 18
 \end{array}$$

It follows that, were the mean synodic standard of our Fasti to be increased by 1 sec .560 650 68, 6 184 integral mean lunations of that increased standard would contain 182 617 d. 6 h. of mean solar time exactly. In fact if we

\* *Supplementary Tables.*

*Table of mean lunar time.*

	d.	h.	m.	s.	th.
6000 mean lunations =	177	183	12	15	19 8.936
100 .. =	2	953	1	24	15 19.149
80 .. =	2	362	10	43	24 15.319
4 .. =	1	18	2	56	10 12.766
6184 mean lunations =	182	617	3	19	8 56.170

divide this sum total of mean solar time, 182 617 d. 6 h. by 6184, the sum total of entire lunar months in 500 mean Julian years, the quotient is

$$29 \text{ d. } 12 \text{ h. } 44 \text{ m. } 48 \cdot 11384217335 :$$

which on this principle must be considered the true mean standard of the integral lunar synodic month, in this period of 500 mean solar, in the sense of mean Julian, years.

SECTION II.—*On the true mean lunar standard of the epoch of*  
B. C. 1847.

Now though the standard thus obtained is 1 sec 561 greater than the mean standard of our own tables; and though the mean standard of our own tables is only 0 s 312 less than the true mean standard of A. D. 1801; it does not follow that the standard obtained from the period, for its proper epoch B. C. 1847 at least, was necessarily in excess. It is known to astronomers that the mean standard of the lunar synodic revolution, ever since the beginning of lunar in conjunction with solar time in the present system of things, has always been greater, in some proportion or other, at any former point of time than it ever was *de facto* at any subsequent point of time. The only question in such cases is concerning the amount of this difference, or the actual proportion of the standard *de facto* at any former point of time to the standard *de facto* at any subsequent point of time. Astronomy has supplied us with formulæ for the solution of such problems as this; and for recovering the true mean lunar standard of any former time from the known mean lunar momenta at present. That of which we ourselves have hitherto made use, for this purpose, was furnished us by the Plumian professor of astronomy in the university of Cambridge, professor Challis; to whose kindness we are indebted in many obligations of this description: and we have already given an account of it<sup>w</sup>.

The mean lunar standard which we assume as the true one for the epoch of A. D. 1801 is that which we find in the Tables and Formulæ of the late Mr. Bailly<sup>x</sup>.

$$29 \text{ d. } 5305887215$$

$$\text{or } 29 \text{ d. } 12 \text{ h. } 44 \text{ m. } 28 \cdot 8655376$$

<sup>w</sup> Dissertation ix. ch. i. sect. vii. vol. ii. 25, 26.

<sup>x</sup> Page 44.

Let us therefore, from this and from the formula of professor Challis, endeavour to discover the true corresponding standard of B. C. 1847. In this case we have  $\kappa = 36.47$  centuries, and  $\kappa^2 = 1330.0609$ . Consequently we have

$$\begin{array}{rcl}
 + 0 \text{ sec } .034 \, 136 \times \kappa & = & + 1 \text{ sec } .244 \, 939 \, 92 \\
 - 0 \text{ sec } .000 \, 092 \, 45 \times \kappa^2 & = & - 0 \text{ sec } .122 \, 964 \, 13 \\
 \text{Correction, } 36.47 \text{ centuries} & = & + 1 \text{ sec } .121 \, 975 \, 79
 \end{array}$$

	d.	h.	m.	s.
Standard of A. D. 1801 ..	29	12	44	2.865 537 6
Correction, 36.47 centuries				+ 1.121 975 79
Standard of B. C. 1847 ..	29	12	44	3.987 513 39

And this consequently, according to formula at least, and to the rule prescribed by astronomy for its use and application, must have been the true mean standard corresponding at this epoch of B. C. 1847 to the true mean standard of A. D. 1801: though whether even this is to be implicitly assumed as the absolute standard of so remote a point of time, 3647 years before A. D. 1801 itself, is open to question. It cannot be so, unless the formula from which we obtain it is alike applicable at all times and under all circumstances; and just as competent to answer its proper purpose for epochs the most remote from A. D. 1801 as for epochs the nearest to it. On this question we feel it does not become us to offer any opinion of our own. It belongs to the astronomers; and to them it must be referred. We may be permitted however to observe that the most judicious among them, and the most profoundly conversant with both the principles and the praxis of their own science, have often expressed their doubts concerning the applicability of formulæ, derived from theory alone without the benefit of observation also, to points of time considerably later than this of B. C. 1847.

It is possible therefore that the true mean lunar standard of B. C. 1847 might be a little greater than the above; and it is also possible that it might be somewhat less. But let us suppose it was neither greater nor less. The standard which we have already deduced from the period of 500 years, and this which we have obtained from formula for the epoch of B. C. 1847, are so nearly the same, that if the latter is competent to represent the truth for that particular point of

time, the former can scarcely be otherwise. The difference between them amounts to no more than an almost inappreciable quantity.

	d.	h.	m.	s.
Standard of the period .. .. .	= 29	12	44	4.113 842 2
Standard of the epoch, B. C. 1847, from formula=	29	12	44	3.987 513 4
Difference of standards : . . . .				0.126 328 8

i. e. less than 8 thirds of mean solar time. Now a difference so slight as that, *de facto*, would scarcely be appreciable. Even supposed to have actually existed (which is by no means a necessary assumption) it could not be detected: and it must have been allowable at that time to assume that a particular standard, which under the circumstances of the case either coincided with the actual one of the time, or came so near to a coincidence with it as this did, was the actual and identical standard of the time itself.

Supposing however such an assumption as this to have been actually made at this time, let us consider in what manner the relation of mean lunar time to mean solar (in the sense of mean tropical and of mean Julian) would be deducible from it. It is now that the peculiar property of the period begins to appear.

500 mean Julian years .. .. .	=	182 625 d.	0 h.
500 mean tropical years .. .. .	=	182 621	3
6184 mean lunar months of the standard of the period .. .. .	=	182 617	6
Consequently the excess of 500 mean Julian years over 500 mean tropical in this pe- riod would be .. .. .	=	3 d.	21 h.
And the excess of 500 mean tropical years over 6184 lunar months of the standard of the period would be .. .. .	=	3 d.	21 h. also.

It follows that the Julian period of 500 mean Julian years, the natural one of 500 mean tropical years, and this lunar period of 6184 mean synodic revolutions, must have been, and must have appeared to be, remarkably adapted one to the other; in a manner of which there is no example besides in any solar and lunar period which could be specified. In such a combination as this, mean tropical solar time would be seen to preserve the same ratio perpetually to mean Julian as mean lunar to mean tropical. Mean Julian, mean



tropical, and mean lunar time each continuing the same in itself, yet each being constantly referrible to the rest; if mean Julian was made the standard of comparison, mean tropical was liable to fall back upon it at the rate of 3 d. 21 h. and mean lunar at the rate of twice that quantity, 7 d. 21 h. exactly, in every such period: and if mean tropical was appointed the standard of reference, mean lunar was always as much behind mean tropical, at the beginning of successive periods of this kind, as mean Julian was in advance of it; while mean tropical (which was after all the only true measure of mean annual time perpetually) was always an exact mean between the two; as much greater than mean lunar, as less than mean Julian, continually.

No lunæsolar period in all antiquity, so far as we know, can be mentioned of which coincidences and characters such as these could be pointed out. There can be no question that if they held good of this particular period and at this particular time, and were known to do so; they were qualified to designate the period as something remarkable of its kind; and to lead to its being adopted as the most proper period for such a cycle as the Phœnix cycle. As to the question of their holding good in B. C. 1847; they hold good at all times of the mean tropical time of our own *Fasti* and of the mean Julian, one in conjunction with the other: and at this particular juncture of B. C. 1847 they either absolutely held good, or might most reasonably have been supposed to do so, of all these forms and species of time, mean lunar, mean tropical, and mean Julian, in conjunction. If that was actually the case at this point of time, we should have no right to suppose that it was not known to be so by the Egyptians of the same period also: particularly in the face of the fact (which will still be the same under all circumstances) of the actual rise of a period, combining these three forms of time, and each of them in this state of relation to the other, at this particular juncture, in the shape of the Phœnix cycle and its component parts.

Astronomers indeed must be well aware that, by virtue of the law of the constant acceleration even of the mean lunar momenta, this property of the period, which qualified it at first in so remarkable a manner for the combination of mean

lunar with mean tropical and mean Julian time in a certain proportion, could not produce that effect perpetually. But they are also aware that the operation of this law is slow and gradual; and that, for any thing which the history even of their own science has brought to light to the contrary, in no one instance was the fact of this law discovered by means of direct sensible evidences and proofs of any kind, or except by the comparison of observations made at great distances of time asunder. The question is first and properly; Did this peculiar property of the period hold good *de facto* B. C. 1847? and was it observed even then and known to do so? This question, it appears to us, must be answered in the affirmative. The first part of it at least must be so answered; and if the first, the second may safely be so too. The next question is, If this property was actually holding good, and actually known to be so, B. C. 1847, would it or would it not be supposed at that time to be such as to hold good perpetually? To which we reply, If it was known to be actual, and was assumed as actual, at the time, it would be supposed to be perpetual, unless the fact of the lunar acceleration was known at the time also. Now this fact is almost the last in relation to the lunar phenomena which modern science itself has discovered. At least it is one of the last of which even modern astronomy has been able to assign the true explanation consistently with the theory of universal gravitation; to which it was long considered to present a formidable and almost insuperable, though a single and solitary, objection. And though we should scarcely think even this an adequate reason for doubting of the possible knowledge of the fact by the astronomers of a sufficiently remote antiquity, especially those of Egypt, contemporaneous with the institution of the Phoenix cycle, (because the further we go back in the history of this science of astronomy among mankind from the first the more appears to have been really known concerning it;) yet we have seen good grounds for concluding that the same assumptions concerning the lunar and solar momenta, which were made at the epoch of the first Phoenix cycle, when they actually held good, or might very reasonably be supposed to do so, were still made at the epoch of the second, five hundred years afterwards, and at the epoch of the third, a thousand

years afterwards, when it was impossible that they could still hold good. If this was the case, it must be decisive that the fact of the lunar acceleration was neither known at the epoch of the first cycle, nor yet discovered by the time of the third; unless any one should suppose that it might have been both discovered and forgotten again meanwhile; which we do not believe to be *probable*, though we cannot deny to be *possible*.

We will assume then, That the proper mean lunar standard of the Phœnix period is that which we have obtained from the period itself; That it was the actual mean lunar standard of nature at the epoch of the first Phœnix cycle, B. C. 1847; That it was observed and known to be holding good at that time, and therefore that it might and probably would be supposed to be capable of holding good perpetually. The consequences of such a supposition to the relation of mean lunar time to mean tropical and mean Julian solar time, as all three combined and compared with each other in a period of this kind perpetually, have been pointed out. Those consequences too would be assumed to be perpetual; and these various relations, once ascertained and defined in point of fact in any manner at the beginning of the very first of the cycles, which were destined to compose the great period of 48,000 years, might be confidently expected to hold good at the beginning of the very last.

Now the lunar standard of the period, and at this epoch of B. C. 1847, being little more than one second of mean solar time greater than that of A. D. 1801, even in the entire synodic revolution; the proportional parts of this difference which must go to the mean diurnal, the mean horary, and the mean sexagesimal motion of such a standard must have been still more insignificant and insensible in comparison of those of the standard of A. D. 1801. There is little difference consequently between the aliquot parts of this standard and the corresponding ones of that of A. D. 1801. It is only in the secular period of 100 mean natural, mean Julian, or mean sidereal years, or in the Phœnix cycle itself of one period of 500 years of this kind after another, that the difference begins to be sensible, and ends at last in being something considerable. We shall here however collect together and exhi-

bit the lunar elements proper to the period, before we proceed any further.

*Mean lunar elements of the Phoenix period of 500 mean tropical years, 6184 mean lunations.*

	d.	h.	m.	s.
Mean synodic revolution . . . . .	29	12	44	4.113 842 173 35
	29.530	603	169	469 598 958 222
Mean diurnal movement; or mean motion	790'	583	424	276 877
in one mean solar day, or period of 24	13°	10'	583	424 276 877
hours of mean solar time . . . . .	13°	10'	35"	.005 456 612 62
Mean motion in one hour of mean solar time	32'	940	976	011 536 54
Mean motion in one minute of mean solar time	0'	549	016	266 858 942
Mean motion in one second of mean solar time	0'	009	150	271 114 315 7
Mean motion in one tenth of a second of mean solar time . . . . .	0'	000	915	027 111 431 57
Mean motion in 365 } mean solar days . . . . .	13 rev <sup>ns</sup> .	129	22	56.991 663 606 3
Mean motion in 365 } days 6 hours of mean solar time . . . . .	13 rev <sup>ns</sup> .	132	40	35.743 027 759 455
Mean motion in 366 } mean solar days . . . . .	13 rev <sup>ns</sup> .	142	33	31.997 120 218 92
Mean motion in 365 d. } 5 h. 48 m. 50 s. 4, or one mean tropical yr.	13 rev <sup>ns</sup> .	132	34	28.121 735 470 707 195
Mean motion in 365 d. } 6 h. 9 m. 9 s. 6, or one mean sidereal year	13 rev <sup>ns</sup> .	132	45	37.482 368 025 129 523 2
Mean motion in 36 525 } mean solar days, or 100 mean Julian yrs.	1336 rev <sup>ns</sup> .	307	39	34.302 775 945 5
Mn. motion in 182 625 } mean solar days, 500 mean Julian years	6684 rev <sup>ns</sup> .	98	17	51.513 879 727 5
Mn. motion in 182 621 } mean solar days 3 h., or 500 mean tropical years . . . . .	6684 rev <sup>ns</sup> .	47	14	20.867 735 353 597 5
Mn. motion in 182 628 } mean solar days, 4 h. 19 m. 43 s. 727, 500 mean sidereal years	6684 rev <sup>ns</sup> .	140	12	12.249 870 854 264 436 834.

Twelve months of this standard, i. e. one lunar year in the



ordinary acceptation of the term, differ from one mean tropical year of the standard of the Fasti in defect only by one second more than a certain number of integral days and hours.

One mean tropical year of the standard of the Fasti . . . . .	=	d.	h.	m.	s.
		365	5	48	50.4
Twelve lunar months of the standard of Phoenix period . . . . .	=	354	8	48	49.366 106 080 2
Difference or epact	=	10	21	0	1.033 893 919 8

In like manner one equable year	=	365	0	0	0
Twelve lunar months of the Phoenix standard . . . . .	=	354	8	48	49.366 106 080 2
Difference or epact	=	10	15	11	10.633 893 919 8

One mean Julian year . . . . .	=	365	6	0	0
Twelve lunar months of the Phoenix standard . . . . .	=	354	8	48	49.366 106 080 2
Difference or epact	=	10	21	11	10.633 893 919 8

One mean sidereal year . . . . .	=	365	6	9	9.567 454 171 8
Twelve lunar months of the Phoenix standard . . . . .	=	354	8	48	49.366 106 080 2
Difference or epact	=	10	21	20	20.201 348 091 6

SECTION III.—*On the lunar character of the epoch of the Phoenix cycles, B. C. 1847; and on the calculation of the new moon of April, B. C. 1847.*

Having given this account of the mean lunar standard of the Phoenix period, we cannot proceed any further without inquiring into the lunar character of the epoch of the Phoenix cycles; and that will oblige us to calculate the new moon of April B. C. 1847, for the meridian of the ancient Heliopolis.

We have already ascertained that the actual Julian epoch of these cycles must have been April 8 at mean noon; or at least, (in conformity to a *positive* rule which required the noctidiurnal cycle of the period to be reckoned from the last complete cycle of that kind *before*, not *after*, the point of noon,) April 7 at mean noon. We have seen too that April 8 at mean noon was as nearly as possible the date of the mean vernal equinox for the meridian of Heliopolis; and that it

was also the date of the conjunction of the sun with a star, remarkable for its peculiar position on the ecliptic, the star  $2\tau$  Arietis, which was standing at that time either on or close to the equinoctial colure itself. No epoch consequently could have been better adapted for the constant reckoning of mean Julian, mean tropical, and mean sidereal, annual time in conjunction ever after than this. It remains to inquire what there was to distinguish the lunar character of this same epoch, and at the same point of time also.

Now it is easy to see from our general lunar calendar that this epoch could not have coincided with the *luna prima*, i. e. the lunar and solar conjunction. In this calendar B. C. 1847 corresponded to Period viii. Cyc. ii. 11: in which year the Nisan of our tables bore date April 2 at 18 hours. And as our calendar at this time was true to the moon, the true new moon of April the same year must have fallen out either on April 2 or on April 3. And hence the *first* inference with respect to the lunar character of the epoch of which we are in search; viz. that it could not have been earlier than the *luna sexta* nor later than the *luna septima*. April 8 referred to April 2 would be the latter; and referred to April 3 would be the former.

Accordingly we have seen reason to collect from the testimony even of the monuments and sculptures of ancient Egypt that it was actually the *luna septima*. The Julian epoch being April 8 at mean noon, or the point of the mean vernal equinox, so near to mean noon, the lunar epoch was the *luna septima* reckoned from mean noon too. And this must imply that the *luna prima* was reckoned from April 2 at mean noon. We shall therefore confirm our preceding inferences, and prepare the way for our future conclusions, on these points, if we can succeed in demonstrating that April 2 at mean noon, or as nearly as possible at mean noon, was the very date of the new moon of April for the meridian of the ancient Heliopolis, B. C. 1847.

We have hitherto indeed abstained from the introduction of calculations of this kind into the body of our work; preferring to reserve them for the Appendix, at the end of the work, if we are permitted to arrive at the end. But this is a

very important conjunction. We think it necessary therefore to lay the particulars of this calculation before our readers even at present: and it is but right perhaps that they should have the means of judging for themselves of the form and method of such calculations (to which we have often had occasion to refer) in one instance at least, from an actual example of the kind; especially as this form and method to a certain extent are peculiar to our mode of proceeding in these cases. Particular explanations are necessarily to be reserved for the Introduction to the Tables. At present we shall premise only a brief account of the symbols of which we make use in such calculations; without which that which follows would not be intelligible.

SECT. IV.—*Calculation of new or of full moons from the tables of the Fasti; and the data required for that purpose, and the symbols by which they are expressed.*

- i. S L. Mean longitude of the sun at mean noon, in the year and month, and on the day, prescribed by the problem.
  - ii. M L. Mean longitude of the moon at mean noon in the year and month, and on the day, prescribed by the problem; corrected by the formula for the acceleration.
  - iii. S L'. Mean longitude of the sun at the instant of mean conjunction or of mean opposition, on the day prescribed.
- Arguments of S L' :

i. D. For the conjunction =  $SL - ML$  or  $ML - SL$ .

For the opposition =  $\overline{SL + 180^\circ} - ML$  or  $ML - \overline{SL + 180^\circ}$ .

ii. T=D, i. e. Mean horary motion of the moon in *time* corresponding to D.

iii. D'=T, i. e. Mean horary motion of the sun in *arc* corresponding to T.

iv. T'=D', i. e. Mean horary motion of the moon in *time* corresponding to D'.

v. D''=T', i. e. Mean horary motion of the sun in *arc* corresponding to T'.

- vi.  $T'' = D''$ , i. e. Mean motion of the moon in *time* corresponding to  $D''$ : and so on, through as many equations of  $T'' = D'''$ ,  $D''' = T'''$ ,  $T''' = D''''$ , &c. as may be necessary to produce a perfect equation of the sun's mean motion to the moon's at last.

Then if SL is greater than ML we have (whether for the conjunction or for the opposition)

$$SL' = SL + \overline{D' + D'' + D''' + D''''}, \text{ \&c.}$$

If SL is less than ML, we have (in either case as before)

$$SL' = SL - \overline{D' + D'' + D''' + D''''}, \text{ \&c.}$$

- iv.  $ML'$ . Mean longitude of the moon at the instant of the mean conjunction or of the mean opposition. Argument of  $ML'$ ,  $SL'$ . For the conjunction,  $ML' = SL'$ . For the opposition  $ML' = SL' + 180^\circ$ .

- v. MT. Mean noon, on the day of the conjunction or of the opposition: a datum supplied by the terms of the problem.

- vi.  $MT'$ . Mean noon, corrected for the true instant of mean conjunction or mean opposition. Arguments, SL, ML, MT, and the sum of the equations  $\overline{T + T' + T'' + T'''}$ , &c.

SL being greater than ML,

$$MT' = MT + \overline{T + T' + T'' + T'''}, \text{ \&c.}$$

SL being less than ML,

$$MT' = MT - \overline{T + T' + T'' + T'''}, \text{ \&c.}$$

- vii. AL. Mean longitude of the apogee of the solar orbit, reckoned from  $0^\circ 0' 0''$  at the mean vernal equinox B.C. 4004 to the mean vernal equinox in the year prescribed; and from that to the instant of the mean conjunction or mean opposition on the day prescribed.

- viii. PL. Mean longitude of the lunar perigee, at mean noon, in the year and month, and on the day, prescribed: corrected by the formula for acceleration.

- ix.  $PL'$ . Mean longitude of the lunar perigee at the instant of mean conjunction or mean opposition: Arguments of  $PL'$ , PL and the sum of the equations  $\overline{T + T' + T'' + T'''}$ , &c. in time, reduced to the mean motion of the lunar perigee in arc. If the mean conjunction or opposition is *before* mean noon,  $PL' = PL - \overline{T + T' + T'' + T'''}$ , &c. so reduced.



- If the mean conjunction or opposition is *after* mean noon,  
 $P L' = \overline{P L + T + T' + T'' + T'''} \text{, \&c. similarly reduced.}$
- x. N L. Mean longitude of the moon's ascending node, at mean noon, in the year and month, and on the day, prescribed ; corrected by the formula for acceleration.
- xi. N L'. Mean longitude of the moon's ascending node at the instant of mean conjunction or of mean opposition. Arguments of N L', N L and the sum of the equations  $\overline{T + T' + T'' + T'''} \text{ \&c.}$ , reduced to the mean horary motion of the node. Then, if the instant of conjunction or of opposition is *before* mean noon,  $N L' = N L + \overline{T + T' + T'' + T'''} \text{ \&c.}$  so reduced. If *after* mean noon,  $N L' = N L - \overline{T + T' + T'' + T'''} \text{ \&c.}$  similarly reduced.
- xii. S A. The sun's mean anomaly at the instant of mean conjunction or of mean opposition. Arguments, S L' and A L.  $S A = S L' - A L.$
- xiii. M A. The moon's mean anomaly at the instant of mean conjunction or mean opposition. Arguments, M L' and P L'.  $M A = M L' - P L'$ , from the lunar perigee, and  $M L' - P L' + 6 \text{ signs or } 180^\circ$ , from the lunar apogee.
- xiv. N D. Mean distance of the sun from the node at the instant of mean conjunction or of mean opposition. Arguments, S L' and N L'.  $N D = S L' - N L'.$
- xv. Equations,  $\pm E \pm E' \pm E'' \pm E'''$ . i. E. Argument, S A. ii. E'. Argument, M A' ; i. e.  $M A \pm a \text{ correction} = x$ . Argument of  $x$ , S A. iii. E''. Argument, S A - M A'. iv. E'''. Argument, N D.
- xvi. M T'. Mean time of the mean conjunction, or mean opposition, corrected by the sum or difference of the equations,  $E E' E'' E'''$ . Arguments, M T' and the equations  $\pm E \pm E' \pm E'' \pm E'''$ .
- xvii. M T''. M T' corrected for the difference of meridians :  
 + if east of Greenwich, - if west.
- xviii. and lastly, the equation of mean to apparent time, if necessary ; or M T'' corrected for the equation of time. Arguments of the equation, S A and S L'.

We observe further, in illustration of the method which we follow, that we calculate first of all for the meridian of Greenwich, to which the mean lunar momenta of our own tables, at the epoch of A. D. 1801, are adapted; and we reduce the calculation at last to the meridian proposed by applying the difference of meridians between that and the meridian of Greenwich. We assume that in the case of the ancient Heliopolis this would be nearly the same as in that of the modern Cairo in Egypt; viz. 2 h. 5 m. 3 s. east of Greenwich. Our tables being Julian, we have provided them with a fourfold epoch; one for each year of one Julian cycle of leap-year, from A. D. 1801–A. D. 1805. The Julian epoch of our lunar tables is April 29 at mean noon, Old style = May 11 New style. The formulæ for the secular correction which we employ are those of Damoiseau, obtained from theory.

Secular correction of M L, +  $(10''.7232 \kappa^2 - 0''.019361 \kappa^3)$

Secular correction of P L, –  $(39''.6971 \kappa^2 - 0''.071674 \kappa^3)$

Secular correction of N L, –  $(6''.5632 \kappa^2 - 0''.011850 \kappa^3)$

in each of which  $\kappa$  stands for the number of centuries from A. D. 1801, and the signs prefixed are those which must be used in going back from A. D. 1801 to some former point of time; as the calculation on which we are about to enter supposes us to do.

The problem therefore in the present instance is to determine the true time of the lunar and solar conjunction in the month of April B. C. 1847, first for the meridian of Greenwich, and through that for the meridian of the ancient Heliopolis in Egypt. The year is the third in the Julian cycle of leap-year which began March 1 B. C. 1849. The epochal year of our mean lunar momenta is consequently A. D. 1802, the third year of the cycle which began March 1 A. D. 1800. From a given day A. D. 1802 to the same day B. C. 1847, or *vice versa*, the interval in mean Julian years is 3648 years: from A. D. 1801 is 3647 centuries; and we know already that we must calculate first of all from mean noon April 29 A. D. 1802 to mean noon April 2 B. C. 1847. From the mean vernal equinox B. C. 4004 to the mean vernal equinox B. C. 1847 the interval was 2157 mean tropical years.

SECTION V.—*Calculation of the new moon of April B. C. 1847 for the meridian of the ancient Heliopolis in Egypt.*

i. S L.	..	April 8	<sup>h.</sup> 12	<sup>m.</sup> 36	<sup>s.</sup> 43.2	Mean tabular V. E. B. C. 1847.
Correction			+	11	9.6	
		April 8	12	47	52.8	True mean V. E. at Jerusalem.
			—	2	20	47
		April 8	10	27	5.8	At Greenwich.
			—	5	22	27 5.8
		April 2	12	0	0	

$$\begin{array}{rcl} \text{S L}' & = & \overset{\circ}{0} \overset{\circ}{0} \overset{''}{0.0} = \text{April } 8 \overset{\text{d.}}{8} \overset{\text{h.}}{10} \overset{\text{m.}}{27} \overset{\text{s.}}{5.8} \text{ B. C. 1847.} \\ & - & 5 \text{ } 51 \text{ } 1.054,688 = - 5 \text{ } 22 \text{ } 27 \text{ } 5.8 \end{array}$$

$$\text{S L} = 354 \text{ } 8 \text{ } 58.945,312$$

ii. M L.	Epoch	160	<sup>°</sup> 36'	<sup>''</sup> 6.667	April 29	<sup>h.</sup> 12	<sup>m.</sup> 0	<sup>s.</sup> 0	A. D. 1802.
	3648 years =	—	172	11	40.994				
			348	24	25.673				
Correction			+	3	42	3.359			
M L	=	352	6	29.032	April 29	<sup>h.</sup> 12	<sup>m.</sup> 0	<sup>s.</sup> 0	B. C. 1847.
	—	355	45	45.729		—	27		
M L	=	356	20	43.303	April 2	12	0	0	

$$\begin{array}{rcl} \text{iii. S L}' \text{ M L} & = & 356 \overset{\circ}{0} 20' 43.3'' \\ - \text{S L} & = & - 354 \text{ } 8 \text{ } 58.9 \end{array} \quad \left. \vphantom{\begin{array}{rcl} \text{iii. S L}' \text{ M L} & = & 356 \overset{\circ}{0} 20' 43.3'' \\ - \text{S L} & = & - 354 \text{ } 8 \text{ } 58.9 \end{array}} \right\} \text{April } 2 \overset{\text{h.}}{12} \overset{\text{m.}}{0} \overset{\text{s.}}{0}$$

$$\begin{array}{rcl} \text{D} & = & 2 \overset{\circ}{11} \overset{'}{44.4} = \text{T} = 3 \text{ } 59 \text{ } 57.382 \\ \text{D}' & = & 9 \text{ } 51.280 = \text{T}' = 17 \text{ } 56.980 \\ \text{D}'' & = & 44.230 = \text{T}'' = 1 \text{ } 20.562 \\ \text{D}''' & = & 3.308 = \text{T}''' = 6.025 \\ \text{D}'''' & = & 0.247 = \text{T}'''' = 0.450 \end{array}$$

$$\text{D} + \text{D}' \text{D}'' \text{D}''' \text{D}'''' = 2 \overset{\circ}{22} 23' 46.5'' = \text{T} + \text{T}' \text{T}'' \text{T}''' \text{T}'''' = 4 \overset{\text{h.}}{19} \overset{\text{m.}}{21} \overset{\text{s.}}{399}$$

$$\begin{array}{rcl} \text{S L} & = & 354 \overset{\circ}{0} 8' 58.9'' \\ & - & 10 \text{ } 39.1 \end{array} = \text{D}' \text{D}'' \text{D}''' \text{D}''''$$

$$\text{S L}' = 353 \text{ } 58 \text{ } 19.8$$

$$\text{iv. M L}' = \text{S L}' = 353 \overset{\circ}{58} 19.8''$$

$$\begin{array}{rcl} \text{v.} & \text{M T} & = \text{April } 2 \overset{\text{h.}}{12} \overset{\text{m.}}{0} \overset{\text{s.}}{0} \\ & & - 4 \text{ } 19 \text{ } 21 = \text{T} + \text{T}' + \text{T}'' + \text{T}''' + \text{T}'''' \end{array}$$

$$\text{vi. M T}' = \text{April } 2 \text{ } 7 \text{ } 40 \text{ } 39$$

vii.	A L. = $0^{\circ} 0' 0''$	} Mean longitude, at the m.V. E.
2157 years =	+ 36 59 10.620	
		B. C. 4004
	36 59 10.620	April 8, 10 27 5.8. B. C. 1847.
	- 1.035	— 6 <sup>d</sup> 3
	A L = 36 59 9.585	April 2 7 27 5.8
<hr/>		
viii.	P L. Epoch, $321^{\circ} 18' 50'' 168$	April 29 12 0 0 A. D. 1802.
3648 yrs. =	- 118 48 29.597	
	202 30 20.571	
Correction	- 13 42 2.847	
	188 48 17.724	April 29 12 0 0 B. C. 1847.
	- 3 0 28.509	— 27
	P L = 185 47 49.215	April 2 12 0 0
	- 1 12.232	— - 4 19 21
<hr/>		
ix.	P L' = 185 46 36.983	April 2 7 40 39
<hr/>		
x.	N L. Epoch, $347^{\circ} 40' 32'' 642$	April 29 12 0 0 A. D. 1802.
3648 yrs. =	+ 358 22 28.798	
	346 3 1.440	
Correction	- 2 15 54.644	
	343 47 6.796	April 29 12 0 0 B. C. 1847.
	+ 1 25 47.185	— 27
	N L = 345 12 53.981	April 2 12 0 0
	+ 34.334	- 4 19 21
<hr/>		
xi.	N L' = 345 13 28.315	April 2 7 40 39
<hr/>		
xii.	S A. S L' = $353^{\circ} 58' 19''.8$	
- A L =	- 36 59 9.6	
	S A = 316 59 10.2 =	$10^{\circ} 16' 59''.17$
<hr/>		
xiii.	M A. M L' = $353^{\circ} 58' 19''.8$	
- P L' =	- 185 46 37.0	
	M A = 168 11 42.8 =	$5^{\circ} 18' 11'' 42.8$ From Per.
		11 18 11 42.8 From Apog.
<hr/>		
xiv.	N D. S L' = $353^{\circ} 58' 19''.8$	
- N L' =	- 345 13 28.3	
	N D = 8 44 51.5 =	$0^{\circ} 8' 44''.858$



## xv. E E' E'' E'''

		s.			h.	m.	s.
E	Argt. S A	=	10	16	59	17	= + 2 48 32.7
E'	Argt. M A'	=	11	19	15	66.3	= - 1 57 33.3
E''	Argt. S A—M A'	=	10	27	43	5	= + 2 31.1
E'''	Argt. N D	=	0	8	44	9	= + 28.2
<hr/>							
E E' E'' E'''							= + 0 53 58.7

xvi. M T'' M T' = April 2  $\begin{smallmatrix} h. & m. & s. \\ 7 & 40 & 39 \end{smallmatrix}$

E E' E'' E''' = + 53 58.7

M T'' = April 2  $\begin{smallmatrix} 8 & 34 & 37.7 \\ + & 2 & 5 & 3 \end{smallmatrix}$  At Greenwich, true mean time.

xvii. M T''' April 2  $\begin{smallmatrix} 10 & 39 & 40.7 \end{smallmatrix}$  At Heliopolis, true mean time.

Equation of time —  $\begin{smallmatrix} 7 & 36.1 \end{smallmatrix}$

xviii. M T'''' April 2  $\begin{smallmatrix} 10 & 32 & 4.6 \end{smallmatrix}$  At Heliopolis, apparent time.

It appears consequently from this calculation at last that the date of the mean conjunction for the meridian in question was

April 2 9h. 45m. 42s.

and that of the true in mean time was

April 2 10h. 39m. 40s.7:

and this is so near to the actual point of mean noon the same day, that every one must allow it to be a decisive confirmation of the inference, otherwise obtained, that the new moon of April, B. C. 1847, for the meridian of Heliopolis must have been reckoned from April 2 at noon.

The actual instant of a conjunction under ordinary circumstances can never be determined from observation; but under peculiar circumstances it may be judged of even by the senses. For example, if the conjunction was *ecliptic*: if it was signalized by an eclipse of the sun, and especially if by an eclipse of the sun at noon. In that case the true time of the true conjunction (in apparent time at least) would be perceptible even to observation. Now the calculation which we have just completed brings a further fact to light; viz. that this conjunction of April 2 B. C. 1847 must actually have been *ecliptic*. We found S L'—N L' or N D = 8° 44' 51".5 and E E' E'' E''' = + 53m. 58s.7.

We have therefore, at the mean conjunction, S L—N L' or the mean distance of the sun from the node .. .. .	} 8 44 51.5
Add for the difference of the mean conjunc- tion and the true, and the sun's motion, over that interval of time, 53h 58'.7 ..	} 2 13.009
And for the equation of the sun's mean dis- tance from the node, Arg't. S A. .. ..	} 1 24 1.66
We get the true distance of the sun from the node at the true conjunction .. .. .	} 10 11 6.169

The limits of a solar eclipse, according to Mr. Baily<sup>a</sup>, are any distance from either of the nodes, at the time of the mean conjunction, less than  $13^{\circ} 33'$  and not more than  $19^{\circ} 44'$ : and in the instance which we are considering N D (the sun's distance, at the time of the mean conjunction, from the ascending node) was under  $8^{\circ} 45'$ . There must consequently have been an eclipse of the sun, somewhere or other, at the time of this conjunction.

The table of solar and lunar eclipses calculated by Pingré begins only B. C. 1001. But if this conjunction of April 2 B. C. 1847 be assumed as the base of a series of ecliptic periods, commonly called Chaldaic Sari, (each of which would contain 223 lunations exactly,) and this series be traced regularly forward from this first conjunction of such a period, April 2 B. C. 1847, through the period of 6184 lunations (500 mean Julian years); we shall find the 57th Sarus entering with the mean lunar and solar conjunction of November 29 B. C. 838; and the second conjunction of that Sarus, Dec. 29, actually ecliptic: for a solar eclipse appears in Pingré B. C. 838, Dec. 29 at 0 15 A. M. for the meridian of Paris. In fact, the second solar eclipse in his table, Sept. 21 at 5 45 P. M. for the meridian of Paris, B. C. 1000, was one which happened at the second conjunction of the 48th Sarus, such as we are supposing. It is liable to any given ecliptic conjunction in this period of 223 lunations, in the course of time to get beyond the ecliptic limits; in which case it disappears from its place in the regular succession of such eclipses in the Sarus: but some other conjunction becomes ecliptic which was not so before, and very often

<sup>a</sup> Tables and Formulæ, p. 51: or, as it has been stated to us by Professor Challis, if the distance of the moon's centre from the node at conjunction

be less than  $13^{\circ} 42'$  the eclipse is certain; between  $13^{\circ} 42'$  and  $18^{\circ} 36'$ , it is possible; but if greater than  $18^{\circ} 36'$ , it is impossible.

the next to it\*. That something of this kind should have happened in the course of the interval from B. C. 1847 to B. C. 1000 (847 years) is nothing extraordinary. We may safely assume that the conjunction of April 2 B. C. 1847 must have been ecliptic: and it is very desirable that it should be calculated and also projected by some competent person, both to ascertain its real magnitude and whether it would be actually visible at the ancient Heliopolis in Egypt or not.

To resume then the consideration of our proper subject,

\* If we apply the longer and more exact ecliptic period of 557 years, 21 days, 18 hours, 4 minutes, 47 seconds, (see Brewster's *Ferguson*, § 326 note,) to this eclipse of April 2, B. C. 1847; we shall find the eclipse corresponding to this first, at the ingress of the third period of that kind, in the solar eclipse which appears in Pingré May 15 at 10 45 A. M. (for the meridian of Paris) B. C. 733.

There are 27 Sari complete in one Phoenix period of 6184 lunations, and 163 lunations over of the 28th; and there are 55 complete in two periods (12,368 lunations) and 103 lunations over of the 56th. The first lunation of the third Phoenix period, from this epoch of April 2, 9 h. 45 m. 42 s. B. C. 1847, would enter March 17, 21 h. 45 m. 42 s. for the same meridian, B. C. 847; and consequently the 121st lunation from that epoch would be the first of the 57th Saros from the same epoch of April 2, 9 h. 45 m. 42 s. B. C. 1847. Now 120 mean lunar months of the standard of the *Fasti* = 3543 d. 16 h. 5 m. 6 s.; from which if we cast off 3287 days = 9 years (B. C. 847—838) the remainder is 256 d. 16 h. 5 m. 6 s. The 121st mean lunation then, from March 17, 21 h. 45 m. 42 s. B. C. 847, would enter 256 d. 16 h. 5 m. 6 s. after that date B. C. 838; i. e. Nov. 29, 13 h. 50 m. 48 s.: and the next lunation to that in Pingré was ecliptic.

It may be observed, with reference to this solar eclipse of April 2 B. C. 1847, that at the distance of 190 cycles of 19 years complete, 3610 years, A. D. 1764, there was a solar and lunar conjunction, April 1 New style March 21 Old style, which was ecliptic. This conjunction is one of those which Ferguson has calculated to illustrate his own tables, *Astronomy*, ch. xix. p. 384. We have calculated it also, according to our tables. Ferguson makes its date April 1, 10 h. 30 m. 25 s. mean time, A. M. for the meridian of London; our calculation, March 21 (= April 1), 10 h. 38 m. 55 s. mean time, for that of Greenwich; and this is nearer to the true time of the eclipse, than Ferguson's, by the amount of the difference between us. This mean lunar and solar conjunction of March 21 (= April 1) A. D. 1764 thus presented a striking analogy to that of April 2 B. C. 1847. The time of the true conjunction in this instance also was only 52 minutes later than that of the mean: and the sun's distance from the node, at the time of the mean conjunction on this occasion, was  $5^{\circ} 35' 51''$ , as it was  $8^{\circ} 44' 52''$  on the former.

the lunar character of the epoch of the mansions. We have seen every reason to conclude that what the Egyptians proposed to regard in their Phoenix period, (chiefly if not exclusively,) was the mean lunar and solar and sidereal momenta. They intended this period for the constant comparison of mean lunar mean tropical mean Julian and mean sidereal time through successive cycles of 500 years: and such being the object proposed by it, it must appear a remarkable coincidence that at the outset of the first of these cycles there was little difference between even the mean and the true lunar momenta. Our calculation shews that the true conjunction was only 53 m. 58·7 sec. later than the mean. We should have no right to suppose that this coincidence was unknown at the time, or was not intentionally regarded in fixing the epoch of these cycles.

The mean time of the mean conjunction however for the meridian of Greenwich was

	h.	m.	s.
April 2	7	40	39
	+ 2	5	3

Mean time of the mean con-				
junction at Heliopolis, April	2	9	45	42

The true time of the mean vernal equinox, for the meridian of our Tables, was

																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

The first mean lunation of the Phoenix period therefore anticipated 6 d. 2 h. 46 m. 26 s.8 on the first mean vernal equinox. What held good in this respect at the beginning of the first cycle of the period would hold good at the beginning of the second; and so on perpetually. The primary lunar epoch of the mansions would recede 3 d. 21 h. on the mean vernal equinox in every cycle of the period; the luna prima of the period would recede 6 d. 2 h. 46 m. 26 s.8 more. But to this point we shall have occasion to return hereafter.



SECTION VI.—*Objection to the preceding assumptions, that they are unsupported by testimony; and confirmation of them by the mean diurnal movement according to the Chaldeans.*

It may indeed be objected to our reasonings hitherto and to our conclusions, that they proceed on an assumption of which there is no proof; viz. that the Egyptians actually supposed the mean standard of the lunar month to have been that which we have deduced from the period of 182 617 days 6 hours of mean solar time, and of 6184 lunations; and actually adopted it as such at the epoch of their first Phoenix cycle. We are ready to admit that no direct proof of this assumption can be adduced. But there are indirect proofs of it, to supply the absence of direct; and there is something like even direct proof itself.

First, we are bound to consider the actual state of the science of astronomy among the Egyptians of the time, and the actual degree of the knowledge possessed by them, more especially with regard to the *mean* lengths of each of these two things, the natural solar, and the sidereal, year. On each of these points their knowledge apparently was not inferior even to that of modern astronomers. The mean standard of each of these years, which they appear to have recognised, was probably nearer to the truth than that of the moderns themselves. It is to be presumed therefore that the standard which they adopted as that of the mean lunar month would be equally in accordance with the truth.

Secondly, the true mean length of the natural lunar month at this particular point of time was actually that of this period; so that if it was truly assumed at this time it must have been that of the period. Thirdly, the fact itself is incontrovertible, that the length of the Phoenix cycle from the first was intended to be this period of 500 years; and actually was so, as long as the cycle was administered according to its original laws and prescriptions. It is equally certain that a lunar element entered it from the first in the shape of the *mansions*; and therefore that it must have been designed from the first to be a lunar as much as a solar or a sidereal period. It must consequently have been intended

from the first to be a cycle of *entire* lunations ; and such a cycle, from the nature of the period, could be only this one of 6184 lunations. Now the average length of each of these lunations would not necessarily be determined by their sum total or number : but by their number collectively, and by the sum of mean time contained in them all together, it would be so. And this sum was such, from the law of the period itself, as combining mean lunar, mean tropical, mean Julian, time in conjunction, yet in a constant ratio one to another, such as we have pointed out ; that it could be neither more nor less than 182 617 days 6 hours. Fourthly, the subsequent history of the mansions, and the state of the case as it appears to have held good at each of the revisions thereof after the first institution, are reflexively proofs that every thing must have been accommodated to certain hypotheses from the first ; and that every thing must have been administered and every thing have proceeded meanwhile without any the least deviation from those original assumptions. Lastly, we are not altogether destitute of testimony *ab extra*, by which it may admit of being substantiated, as a matter of fact, that such was the assumption, respecting the true length of the mean natural month, some time or other made by the ancient Egyptians ; and if so, most probably at the epoch of their first Phoenix cycle.

Both Ptolemy and Geminus have given an account of the ecliptic period commonly called the Saros, to which we lately referred ; Ptolemy both in the shape of the simple period, and in that of the *ἑξελιγμός*, or of this simple period tripled ; Geminus only in this form of the *ἑξελιγμός* <sup>b</sup>. We may possibly have occasion to consider the nature of the period hereafter ; and also to inquire into the grounds of the opinion which assigns its discovery to the Chaldæans. Each of these authorities however tells us that, in this form of the *ἑξελιγμός*, it consisted of 669 lunations, 19 756 days, 723 revolutions of the ecliptic, and 32 degrees of one more ; i. e. of 260 312 degrees in all. And Geminus in particular informs us, that the Chaldæans divided this number of degrees by the number of days above stated, and deduced therefrom their rate of the mean diurnal movement of the moon, i. e. the space

<sup>b</sup> Magna Compositio, Lib. iv. cap. ii. 216. Uranologium, 61. D. Geminus, xv.

on the ecliptic passed over by it on an average every day; neither more nor less than  $13^{\circ} 10' 35''$ . We say neither more nor less; for such appears to be the natural inference from the language of Geminus; though he does not say so in so many words.

Now it is a great objection to the supposed derivation of this mean rate of the lunar diurnal movement, according to the Chaldees, from such a division of the number of circumferences or degrees contained in the  $\xi\xi\epsilon\lambda\iota\gamma\mu\omicron\varsigma$  by the number of days comprehended in it also, that it could not be obtained from any such division. We have only to divide 260 312 degrees by 19 756, to satisfy ourselves that the mean diurnal motion, resulting from that division, would be only  $13^{\circ} 10' 34''\cdot865\ 357\ 359\ 789$ , and not  $13^{\circ} 10' 35''$  exactly. In what manner then was this Chaldaic standard of the mean lunar diurnal movement obtained? In every thing of this kind, as far as we have been able to judge of the fact, the Chaldæans appear to have borrowed from the Egyptians; and to have adopted implicitly what came to them from the Egyptians. Now the mean lunar diurnal movement of the standard of the period of 500 years, as we have seen<sup>c</sup>, was actually  $13^{\circ} 10' 35''\cdot005\ 456\ 612\ 62$ : and that differed so little from  $13^{\circ} 10' 35''$  exactly that, for all practical purposes, it might be considered the same with it.

In fact, it does not appear that either of these standards, either this of  $13^{\circ} 10' 35''\cdot005\ 456\ 612\ 62$ , or that of  $13^{\circ} 10' 35''$  exactly, is critically adapted to a period of 19 756 days, and 723 rev.  $32^{\circ}$ , or 260 312 $^{\circ}$ , exactly also. For if we multiply  $790'\cdot583\ 424\ 276\ 877$  (which is the former standard) by 19 756, the product is  $260\ 312^{\circ} 46'\cdot130\ 013\ 982\ 012$ ; i. e. 723 rev.  $32^{\circ} 46' 7''\cdot800\ 838\ 920\ 72$ : and if we multiply  $13^{\circ} 10' 35''$  by 19 756 also, the product is still  $260\ 312^{\circ} 44' 20''$ ; i. e. only  $1' 47''\cdot800\ 838\ 920\ 72$  less than before. Whichever of these standards then were to be assumed, it would make a difference in one period of the  $\xi\xi\epsilon\lambda\iota\gamma\mu\omicron\varsigma$  of no more than  $1' 47''\cdot8$ : in which case, it is evident that there would not be much to choose between them, yet that the most convenient of the two, for practical purposes, would be this of  $13^{\circ} 10' 35''$  exactly. It is therefore the most probable explanation of

<sup>c</sup> Supra, p. 508.

this standard of the Chaldæans, that it came to them from some other quarter, as the absolute measure of the mean lunar diurnal movement; and was received implicitly by them, and applied in that capacity to the *ἐξελιγμὸς* itself. Certain it is that it could not have been obtained from this period except approximately; but it might be applied to it, and it naturally would be, if it came to the Chaldæans as the fixed standard of the mean lunar diurnal momenta: in which case there can be little doubt that it must have come to them from the Egyptians, and must have been ultimately derivable from the mean lunar standard of the Phoenix period of the Egyptians\*.

SECTION VII.—*On the further confirmation of the mean lunar standard of the epoch of B. C. 1847; and of the mean lunar and solar conjunction of April 2 that year.*

The above objection to our assumptions having been thus, as we trust, sufficiently answered, we shall conclude this part of our subject for the present with some further observations on the mean lunar standard of the period, as supposed to be identical with that of the epoch, B. C. 1847; and on the mean lunar conjunction of April 2 that year.

i. Seven periods of 500 years contain 3 500 years. If the first period of this kind then began at the mean vernal equinox, A. M. 2158 B. C. 1847, the eighth would begin at the mean vernal equinox, A. M. 5658 A. D. 1654. The middle term between B. C. 1847 and A. D. 1654 is B. C. 97.

Now if we calculate the mean lunar standard for A. D. 1654, 1·47 centuries before A. D. 1801, according to formula, we find it to be 29 d. 12 h. 44 m. 2 sec·915 517 7. If we calculate it in like manner for B. C. 97, 18·97 centuries before

\* Whether the other assumptions of the Chaldæans, of which Geminus gives an account in the same place, were borrowed from the Egyptians also, we cannot undertake to say. It appears that the anomalistic period of the moon, which they obtained in the manner explained by him, was 27 d. 33' 20" of the sexagesimal division, = 27 d. 13 h. 20 m. of the modern. The standard of this period at present (i. e. A. D. 1801) is 27 d. 13 h. 18 m. 37 s·4, i. e. only 1 m. 22 s·6 less than the former. It is for the astronomers to consider how far that would be consistent with the relation of the motion of the moon and of the perigee or apogee respectively, one to the other, at this early period; when, as they tell us, the mean motion of the moon was slower and that of the perigee or the apogee was quicker than it is at present.



A. D. 1801, we find it to be 29d. 12 h. 44 m. 3 sec. 479 828 4.  
We have therefore,

	d.	h.	m.	s.
B. C. 1847, standard of the period	29	12	44	4-113 842 2
B. C. 97, standard from formula	29	12	44	3-479 828 4
Difference				0-634 013 8

Again, we have

	d.	h.	m.	s.
Standard of the middle period, B. C. 97	29	12	44	3-479 828 4
Standard of A. D. 1694 . . . . .	29	12	44	2-915 517 7
Difference				0-564 310 7

That is, nearly the same as before, the difference being only 0 sec. 069 703 1. It follows that the standard obtained from the period must have been just as true for its own epoch, B. C. 1847, as the standard obtained by formula, for the middle period between B. C. 1847 and A. D. 1654, B. C. 97, and for A. D. 1654, respectively. This point may be further illustrated as follows:

i. The recession of the lunar epoch of the period on the point of the mean vernal equinox in every cycle of 500 years being 3 d. 21 h. in seven periods, or 3 500 years, this recession would accumulate to 27 d. 3 h.

ii. For the meridian of our tables, properly corrected, we have the mean vernal equinox, A. D. 1654:

	h.	m.	s.
March 12	9	47	52.8
—	15	44	
Mean V. E. at Heliopolis A. D. 1654, March 12	9	32	8.8
Mean V. E. at Heliopolis B. C. 1847, April 8	12	32	8.8
Anticipation, seven periods, 27	3		
Mean V. E. at Heliopolis A. D. 1654, March 12	9	32	8.8
Lunar anticipation, seven periods	—	27	3
Luna 7 <sup>a</sup> of Period viii A. D. 1654	Feb. 13	6	32 8.8
Subtract . . . . .	6	2	46 26.8
Luna 1 <sup>a</sup> of Period viii . . . . .	Feb. 7	3	45 42

The true mean new moon of February, A. D. 1654, for the meridian of Heliopolis, being calculated according to our manner, is found to have fallen out

	h.	m.	s.
Feb. 6	19	58	19
Add	7	47	23
Feb. 7	3	45	42

From which it appears that the true mean conjunction

anticipated on the first of the eighth period by 7 h. 47 m. 23 s. of mean solar time, but no more.

Now the difference between the standard of the period (which we assume to have been also the true mean standard of B. C. 1847) and that of B. C. 97, the middle point between B. C. 1847 and A. D. 1654, being 0 sec-634 013 8 in one lunation, in 6184 lunations it would be 3920 sec-741 339 2, or 1 h. 5 m. 20 sec-741 339 2. And in seven periods it would be 7 h. 37 m. 25 sec-189 374 4. And this would be the quantity by which the first lunation of the 8th period, with the standard of the middle point B. C. 97, would be found anticipating on the first lunation of the 8th period with the standard of B. C. 1847. We have therefore,

Anticipation of the true mean conjunction on the luna prima	h.	m.	s.
of Period viii A. D. 1654 .. .. .	7	47	23
Anticipation of the luna prima of the 8th Period with the middle standard on the same .. .. .	7	37	25
Difference in 3500 years	9	58	

And this, we apprehend, must be a conclusive proof of the correctness of the standard of the period for its own epoch, B. C. 1847.

ii. With regard to the mean conjunction of April 2, B. C. 1847; if the method which we employ for the solution of such problems as these has any particular recommendation, it is the precision with which it is calculated to determine the mean lunar momenta at the prescribed point of time. For as we make use of the mean motions of A. D. 1801; as we calculate for an instant which is always the same for a given meridian, the instant of mean noon; as we go back from the epoch of A. D. 1801 with complete cycles of the Julian leap-year; (which is the same thing as going back day by day;) as we carry back with every day the proper mean motion of that day; and as by our system of differential equations we equalize the mean motion of the moon to that of the sun at last within less than a second of mean solar time: it is manifest that, if the mean motions of A. D. 1801 have been exactly ascertained, and if they could be considered invariable, nothing would be more certainly determined than the mean motions of any epoch, howsoever remote from A. D. 1801, by such a method as this. And

though the mean motions of A. D. 1801 cannot be treated as invariable; yet the formulæ devised for their correction come in to supply that defect: so that could each of these things be absolutely depended on, the mean motions *de facto* of A. D. 1801, and the formulæ for the secular correction perpetually, then the mean motions of any former epoch must be determinable by our method with corresponding precision, and might be relied upon accordingly.

We propose therefore to compare the mean conjunction obtained by our calculation for this epoch of April 2, B. C. 1847, with the mean conjunction attainable by the same kind of calculation in the corresponding month A. D. 1802; which will not be the month of April but the month of March. For between B. C. 1847 and A. D. 1802 we have an exact number of periods of 304 years; viz.  $12 = 3648$  years: so that, if the first conjunction of a period of that kind were supposed to have borne date, for a particular meridian, April 2, 9 h. 45 m. 42 s., the first of the thirteenth period, for the same meridian, would bear date just 12 days earlier, March 21, 9 h. 45 m. 42 s.

Now the true mean conjunction for March A. D. 1802, according to our calculation, is determined to March 21, 18 h. 49 m. 23 s. at Greenwich, March 21, 20 h. 54 m. 26 s. at Heliopolis. We have therefore, for this meridian,

True mean luna prima, A. D. 1802,	March 21	h.	m.	s.
		20	54	26
Luna prima of period xiii of 304 years,	March 21	9	45	42
Anticipation	..	11	8	42

From which it appears that the first mean conjunction in such a period as this of 304 years, brought down perpetually from B. C. 1847, would have anticipated on the true mean conjunction A. D. 1802, 11 h. 8 m. 42 s. exactly.

Now in these 12 periods of 304 years each, between B. C. 1847 and A. D. 1802, there would be 45 120 lunations. The middle term between A. D. 1801 and B. C. 1847 is B. C. 23: and the standard of B. C. 23, 1823 centuries anterior to A. D. 1801, calculated from formula, is found to be,

	d.	h.	m.	s.
	29	12	44	3.457 112 7
The standard of the period of 304 years is	29	12	44	2.553 191 5
Difference =				0.903 921 2

And this difference in 45 120 lunations amounts to 11 h. 19 m. 44 s. 924 544, or 11 h. 19 m. 45 s.; by which the first lunation of the xiii<sup>th</sup> period A. D. 1802 would be found anticipating on the 45 121<sup>st</sup> lunation, from the same epoch of B. C. 1847, but with the standard of the middle period, that of B. C. 23. We have then, A. D. 1802,

The 1st mean lunation of the xiii <sup>th</sup>	}	March 21	h. m. s.		
period of 304 years ..			9 45 42		
			+ 11 19 45		
The 45 121st mean lunation of the	}	March 21	21	5	27
standard of B. C. 23 ..					
True mean lunation of March,	}	March 21	20	54	26
A. D. 1802 .. ..					
Difference .. ..				11	

SECTION VIII.—*Application of the above conclusions to the different types of the mansions.*

We now proceed to apply our conclusions to the actual scheme and delineation of the mansions at the epoch of each type.

We must begin with settling the longitude of the epoch; i. e. the mean lunar longitude at the date of the mean vernal equinox for the meridian of Heliopolis. We have seen that the date of the mean new moon for that meridian, B. C. 1847, was April 2 9 h. 45 m. 42 s. The date of the mean vernal equinox was April 8 12 h. 32 m. 8 s. 8: and consequently the moon's age, in mean lunar time, at the mean vernal equinox was 6 d. 2 h. 46 m. 26 s. 8. Now with the mean motion of the standard

d.	h.	m.	s.		°	'	″	°	'	″
6	0	0	0	=	79	3	30.032	739	675	72
2	46	26.8		=	1	31	22.915	653	866	88
6	2	46	26.8	=	80	34	52.948	393	542	60

Consequently we have

					h.	m.	s.
ML'	=	353	58	19.880	April 2	9	45 42
		+ 80	34	52.948		+ 6	2 46 26.8
ML'	=	74	33	12.828	April 8	12	32 8.8

And this consequently must have been the mean longitude of the epoch, whether dated on the luna septima, at 2 h. 46 m. 26 s. 8, or at the mean vernal equinox, April 8 12 h. 32 m. 8 s. 8. It is manifest that, under the peculiar circumstances of the case, it was equally well adapted to represent the mean



lunar momenta in three different relations at once ; their relation to a fixed Julian date, April 8 at mean noon, their relation to a variable tropical date, (variable in comparison of a Julian, but fixed and invariable in itself,) the point of the mean vernal equinox, and their relation to a similarly variable sidereal date, that of the conjunction of the sun with the star  $2\tau$  Arietis, remarkable for its position on the ecliptic at all times, and at this time standing on the vernal colure also. Of these dates, the only one competent to remain the same in terms perpetually was April 8 at mean noon ; and mean noon being the proper epoch of such a Julian term, we must subtract from the mean longitude of the epoch the quantity by which it was more advanced than the point of mean noon ; i. e.  $32\text{ m. } 8\text{ s. } 8$  mean motion of the standard of the period.

We have therefore

$$\begin{array}{rcl}
 \text{ML}' = 74^{\circ} 33' 12''.828 & \text{April 8} & \begin{array}{l} \text{h.} \quad \text{m.} \quad \text{s.} \\ 12 \quad 32 \quad 8.8 \end{array} \\
 \quad \quad \quad - 17 \quad 38.943 & & \quad \quad \quad - 32 \quad 8.8 \\
 \hline
 \text{ML}' = 74 \quad 15 \quad 33.885 & \text{April 8} & 12 \quad 0 \quad 0
 \end{array}$$

Knowing therefore the increment on the mean longitude of the epoch both in 500 mean tropical years, and in 500 mean Julian, and in 500 mean sidereal, years, we have nothing to do but to add it to the longitude of the epoch at the beginning of the first of these periods, and we shall get this longitude at the beginning of the next ; and so on as long as the mean motion of the period is supposed to continue invariable both in itself and in its relation to every thing else. We propose to leave mean sidereal time, and the mean motion in longitude as referrible to the mean sidereal year, out of our account for the future ; and to confine ourselves solely to mean lunar, mean tropical, and mean Julian. In what manner each of these would proceed, both in conjunction and in themselves, through successive periods of 500 years will appear from the following scheme.

*Recession of mean lunar time in the Phœnix period of 500 years,  
through successive cycles.*

<i>Mean new moon.</i>				<i>Mean new moon.</i>			
<i>Julian recession.</i>				<i>Mean vernal equinox.</i>			
B. C.							
		h.	m. s.		h.	m. s.	
1847	April 2	9	45 42	April 8	12	32 8.8	Luna 7 2 46 26.8
- 500	- 7	18		- 3	21		+ 3 21
1347	Mar. 25	15	45 42	April 4	15	32 8.8	Luna 10 23 46 26.8
- 500	- 7	18		- 3	21		+ 3 21
847	Mar. 17	21	45 42	Mar. 31	18	32 8.8	Luna 14 20 46 26.8

*Increment of the mean lunar longitude in successive cycles of the  
Phœnix period.*

<i>M L. Mean vernal equinox.</i>				<i>M L. Apr. 8.12h.</i>			
B. C.							
1847	74	33	12.828	74	15	33.885	
- 500 +	47	14	20.868	+ 98	17	51.514	
1347	121	47	33.696	172	33	25.399	
- 500 +	47	14	20.868	+ 98	17	51.514	
847	169	1	54.564	270	51	16.913	

Now though the epoch of the mansions themselves would be that of mean longitude itself perpetually, (the intersection of the ecliptic and of the equator, the zero of the sphere,) the epochal mansion would naturally be regarded as that in which the lunar epoch of the period, the lunar term coincident with the point of the mean vernal equinox, was falling at the beginning of the period: and this was a variable term, the luna 7<sup>a</sup> at the beginning of the first period, the luna 10<sup>a</sup> at that of the second, and the luna 14<sup>a</sup> at that of the third; and so on, as the above scheme shews. The epochal mansion at the beginning of each period, determined accordingly, would be variable too. The mansion which had the same longitude as this lunar term at the beginning of each period, or in which this epochal term was falling at that point of time, would be designated by that coincidence as the epochal mansion of the period.

Thus, Period i B. C. 1847, we have

The longitude of the luna 7 <sup>a</sup> , at 2 h. 46 m. 26 s. 8	}	74	33	12.828
and the point of the mean vernal equinox ..				
Longitude of mansion vi .. .. .		64	17	8.571
Longitude of the epoch in the mansion ..		10	16	4.257
Period ii. B. C. 1347, Longitude of the epochal term, the luna 10 <sup>a</sup> at 23 h. 46 m. 26 s. 8. ..		121	47	33.696
Longitude of the xth mansion .. ..		115	42	51.429
Longitude of the epoch in the mansion ..		6	4	42.267
Period iii. B. C. 847, longitude of the epochal term, the luna 14 <sup>a</sup> at 20 h. 46 m. 26 s. 8		169	1	54.564
Longitude of the xivth mansion .. ..		167	8	34.286
Longitude of the epoch in the mansion ..		1	53	20.278

Such then, according to the principles which we have endeavoured to explain and apply, must have been the state of the mansions at the primary epoch, B.C. 1847, at the first revision, B. C. 1347, and at the second, B.C. 847, had it been deferred until then. Concerning the first and the second of these types, we have little more to say; each of them having been superseded by the third. That which descended to posterity, and in the course of time passed into all parts of the ancient world distinct from Egypt, was this third. We will observe further in reference to the two preceding ones, that, as the above comparison shews, the seat of the epoch at the second revision was as nearly as possible the middle of the tenth mansion. Consequently, all through that type, this mansion must have been considered the epochal mansion; the mansion from which the mean lunar time of the period, as supposed to have been coincident with the mean vernal equinox at the beginning of the period, must have been reckoned all through the period. And of this fact possibly something like proof may actually come to light hereafter.

SECTION IX.—*On the change of the epoch of the mansions at the second revision; and on the reasons to which it was due.*

There can be little doubt that the Phœnix period was intended from the first to be reckoned not in equable years, but in mean tropical, or in mean Julian. It could not otherwise have been kept constantly attached to a given natural

term, the point of the mean vernal equinox, or to a given Julian one, April 8 or April 7 at mean noon.

It happened however that the first period of this kind took its rise almost in the middle of the current equable year, æra cyc. 2159. The first of Thoth that year, according to the Julian rule, bore date Nov. 18 at midnight A. M. 2158 B. C. 1848: the first Phoenix cycle did so in the fifth equable month reckoned from Thoth 1; i. e. on Tybi 21 at mean noon æra cyc. 2159, April 7 at mean noon A. M. 2157 B. C. 1847; and the first type of the mansions bore date one day later, Tybi 22 at mean noon, April 8 at mean noon, or nearly so. Now because of the tendency of the equable year to recede continually on a given term in the mean natural or mean Julian; it could not fail to happen that the first thousand equable years, reckoned from the equable epoch of the Phoenix period in terms of the æra cyclica perpetually, would appear to come to an end Thoth 1 at midnight æra cyc. 3159 March 22 at midnight A. M. 3157 B. C. 848; one year in the æra mundana or æra vulgaris before the proper epoch of the third Phoenix cycle in either of those æras, A. M. 3158 B. C. 847.

If then the reckoning of the Phœnix period had been designed from the first to be kept in terms of the æra cyclica, or had been always so kept, no one could deny that æra cyc. 3159 A. M. 3157 B. C. 848 might have been considered the proper epoch of the third cycle, and therefore the proper time for the second revision both of the sphere and of the mansions. Consequently, though this year was not the legitimate epoch of the third cycle, as reckoned perpetually in the mean natural or in the mean Julian year, it might be regarded as its epoch in the reckoning of equable years; and that too without any prejudice to the nominal length of the cycle, considered as something fixed and invariable in every æra to which it might be applied alike.

It appears accordingly that, for some reason or other, this year, æra cyc. 3159 A. M. 3157 B. C. 848, was treated *de facto* as the epoch of the third cycle; and that both the sphere and the mansions were revised, and laid down afresh, in *this* year, as the proper beginning of the third cycle, and preparatory to it. That the true epoch of this cycle was



thus anticipated by one year cannot be denied. But the fact of the anticipation will be certain in any case. All that we have to do is to inquire into the probable reasons of the fact; and to assign them as well as we can, at this distance of time from the event.

i. then:—

The mean vernal equinox for the meridian of our Tables, uncorrected, is seen to stand, B. C. 848 .. .. .	}	March 31	h.	m.	s.
			0	47	52.8
Correction, .. .. .		..	+	12	11
					9.6
True mean Tabular vernal equinox at Je- rusalem .. .. .	}	March 31	12	59	2.4
Subtract .. .. .				15	44
Mean vernal equinox for the meridian of Heliopolis .. .. .	}	March 31	12	43	18.4
B. C. 1847, we had the same equinox for the same meridian .. .. .	}	April 2	12	32	8.8
Difference relatively to the point of mean noon				11	9.6

That is, relatively to the point of mean noon, the mean vernal equinox, for the same meridian, that of the ancient Heliopolis, was falling B. C. 848 almost exactly as it had done B. C. 1847; the difference between them being only the difference of the mean tropical year of our standard and the mean Julian, 11 m. 9s.6 itself. Add to this that March 31, the Julian date of the mean vernal equinox, according to the Phoenix rule, B. C. 848, was the eighth term in the sphere of Mazzaroth now, as April 7, the similar Phoenix date B. C. 1847, had been the fifteenth then: i. e. the cardinal points in the tropical sphere were now falling critically in *octavis partibus* of the sphere of Mazzaroth: nor could any time have been selected for laying down the moveable in terms of the immoveable sphere, under circumstances the most analogous to those under which it had been so laid down at first, more proper than this year B. C. 848.

ii. Another and possibly a still more influential reason would be found in the following coincidence; viz. that B. C. 848 was the date of the first great period of the Apis cycle, the equable secular period of 125 years; the first which had yet occurred since the institution of the cycle itself *æra cyc.* 3034 B. C. 973. In this period there were five cycles of 25 years each; and the recession of a given equable term on a given Julian one (as a general rule) amounted to 30 days or

one complete equable month. Thus æra cyc. 3034 the first of Thoth was falling on April 21 at midnight B. C. 973: æra cyc. 3159 B. C. 848, the year of which we are speaking, it was falling March 22 at midnight.

There is good reason to believe that the Egyptians attached much importance to this Apis period of 125 equable years. It should be considered that neither at the epoch of their first Phoenix period, nor at that of their second, was their Apis cycle also, properly so called, yet in existence. There had consequently been no opportunity of combining the sphere and the mansions and this Apis cycle in a common reckoning, until it was supplied by the coincidence which has just been pointed out. The lunar mansions were a lunar calendar of their own kind (a diurnal lunar calendar too) as much as the Apis cycle. An account was kept in those mansions of the mean lunar motion from day to day; at least according to the standard assumed of  $13^{\circ} 10' 35'' \cdot 005$ . Nothing could appear more desirable or more consistent than that the mansions and the Apis cycle, as soon as the opportunity served, should be adjusted to each other; and that each should set out from a common epoch: and that would be effected at once, by adopting the epoch of the Apis reckoning, at the ingress of cycle vi. æra cyc. 3159 B. C. 848, as the epoch of the mansions also.

Now the proper epoch of the Apis cycle from the first was the 11th of Thoth; and æra cyc. 3159, when the first of Thoth was falling on March 22 at midnight, the eleventh would fall on April 1 at midnight; and the date of the mean vernal equinox the same year being March 31 at noon, it is manifest, that were the epoch of the third Phoenix cycle to have been fixed at this time to March 31 at noon, agreeably to the Phoenix rule from the first, and the epoch of the mansions to April 1 at noon; nothing would have been more analogous to what had been done at first, when the epoch of the cycle was fixed to April 7 at noon, and that of the mansions to April 8 at noon. In our opinion these coincidences were sufficient to determine the Egyptians to consider this year the fittest which they could adopt for a second revision of the sphere and of the mansions. It is manifest that a revision, so timed and so circumstanced, would be a restoration as much as a

revision ; a return to the first principles of the relation of the sphere and of the mansions to each other, combining more-over and incorporating with their own another of great importance, which hitherto could not so properly be taken into account ; that of the Apis cycle to both.

This year B. C. 848 was an important epoch in another respect. It was the point of time, at which the Egyptians having perfected the celebrated ecliptic period, commonly (but erroneously) attributed to the Chaldees, set themselves first to apply it to its natural use and purpose, in the regular observation of a series of solar and lunar eclipses, which they continued for 524 years at least ; and of which we hope to give an account hereafter.

Lastly, these presumptions *a priori* of what would probably be done this year, grounded on such considerations as these, are strikingly confirmed by the monumental sculpture, of which we have already given a description<sup>b</sup> ; the representation of the heavens under the figure of a colossal cow supported by Hercules Lunus, and having under its belly over the head of this Hercules 13 black stars, and over its back 26 white stars. Hercules Lunus was more properly the impersonation of the lunar mansions than that of the Apis cycle ; and the 13 stars over his head were the type of those mansions, and the index of his relations in that respect. The 26 white stars over the back of the cow, but not so immediately over *his* head, were meant of the Apis cycle, and of the number of lights in the Apis month at this time. Their number implied that the first calendar luna at this time was falling on the luna *quarta* ; and that began to be the case first at the ingress of our xxvi Julian period B. C. 868, and it was still more decidedly the case in the 21st year of that period, B. C. 848. We shall see by and by that the true new moon of March this year fell on the 28th ; and therefore that April 1, the 11th of Thoth, the same year, and the first day of the vith Apis cycle, must have been the luna *quarta*. It is evident consequently that this representation might be and probably was intended for no other purpose but that of symbolizing and commemorating the union of the lunar mansions and the Apis cycle under the auspices of the same

<sup>b</sup> *Supra*, p. 345, sqq.

presiding principle, the Hercules Lunus or Khons of the Egyptians: and if so, in this year, which is designated by so many peculiar coincidences as the only true epoch of such a combination. It follows that the age of this sculpture is hereby determined too. It cannot be older than what it records. Consequently it cannot be older than B. C. 848. But it may be, and probably is, as old.

It remains to consider the changes which would be necessary in order to accommodate the mansions to the new epoch in question. Now (p. 530 *supra*) we had

B. C.		h.	m.	s.		h.	m.	s.
i. 847	The luna	1 <sup>a</sup>	0	0	0.0	=	March 17	21 45 42.0
+ 1	One lunar yr's epact on } the solar yr. of 365 dys. }				=	+ 10	15 11 10.634	
848	The luna	1 <sup>a</sup>	0	0	0.0	=	March 28	12 56 52.634
	+ 2 23 46 25.766					+ 2	23 46 25.766	
	Luna	3 <sup>a</sup>	23	46	25.766	=	March 31	12 43 18.4
	+ 5 16 41.6					+ 5	16 41.6	
	Luna	4 <sup>a</sup>	5	3	7.366	=	March 31	18 0 0.0
ii. We have								Mean vernal equinox.
B. C.								h. m. s.
1847	ML =	74	33	12.828		April 8	12 32	8.8
- 1000	+ 94 28 41.735							
847	ML =	169	1	54.563		March 31	18 32	8.8
+ 1	- 132 34 28.122					- 5	48 50.4	
848	ML =	36	27	26.441		March 31	12 43	18.4
	+ 13 10 35.005					+ 1 d.		
	ML =	49	38	1.446		April 1	12 43	18.4
iii. 1847	ML =	74	15	33.885		April 8	12	
- 1000	+ 196 35 43.028							
847	ML =	270	51	16.913		April 8	12	
+ 1	= - 129 22 56.992					- 365d		
848	ML =	141	28	19.921		April 8	12	
	- 92 14 5.038					- 7d		
	ML =	49	14	14.883		April 1	12 0 0	
	+ 23 46.564					- 1	43 18.4	
848	ML =	49	38	1.447		April 1	12 43	18.4

Now, according to the original rule of the mansions, the epochal term even in this revision must have been that which



coincided with the point of the mean vernal equinox, B. C. 848, March 31, 12 h. 43 m. 18 s. 4; and that, as we have seen, was the luna 3<sup>a</sup>, at 23 h. 46 m. 25 s. 766. And the mean longitude of this term, under such circumstances, as we have seen, was 36° 27' 26". 441. But the Apis cycle being combined in the same scheme with the mansions, and at this time too, the epochal term would be the 11th of Thoth, the first lunar term of cycle vi. 1, æra cyc. 3159, reckoned according to the Apis rule, which was also the primitive rule of the noctidiurnal cycle; viz. at 18 hours or sunset: and the 11th of Thoth, so reckoned æra cyc. 3159, bore date March 31 at 18 hours, B. C. 848; and this, as we have seen, corresponded to the luna 4<sup>a</sup> at 5 h. 3 m. 7 s. 366.

We have therefore,

The luna 3 <sup>a</sup>	h. m. s.	23 46 25.766	=	March 31	h. m. s.	12 43 18.4	=	36° 27' 26". 441
+ 5 16 41.6		=		+ 5 16 41.6		=		+ 2 53 52.187
<hr/>								
The luna 4 <sup>a</sup> at	h. m. s.	5 3 7.366	=	March 31	h. m. s.	18 0 0	=	39 21 18.628

And this was consequently the mean longitude of Thoth 11, the first lunar term of cycle vi. 1 æra cyc. 3159 at 18 h. from midnight. We have therefore,

Longitude of the epochal term, Thoth 11 at 18 hours

(= luna 4<sup>a</sup> at 5 h. 3 m. 7 s. 366) . . . . . 39° 21' 18". 628

Longitude of the iv<sup>th</sup> mansion . . . . . 38° 34' 17". 143

Longitude of the epochal term Thoth 11 at 18 h. in

the mansion . . . . . 0° 47' 1.485

The epoch was consequently falling in the iv<sup>th</sup> mansion, and almost critically at the proper beginning of this mansion; certainly in the first degree of this mansion. Nor would the epoch have fallen out of the limits of this mansion, even if taken from the lunar term, coincident with April 1 at 12 h. 43 m. 18 sec. 4, i. e. the luna 4<sup>a</sup> at 23 h. 46 m. 25 s. 766.

The longitude, corresponding to this term, April 1, . . . . .

12 h. 43 m. 18 sec. 4 was . . . . . 49° 38' 1.446

The longitude of the iv<sup>th</sup> mansion . . . . . = 38° 34' 17". 143

Longitude of this term in the iv<sup>th</sup> mansion . . . . . 11° 3' 44". 393

These coincidences consequently would designate this as the epochal mansion. In the recension therefore of this date, B. C. 848, the epochal mansion, determined by the circumstances of the case, must have been the fourth; and we shall see by and by, from the testimony of the names imposed on

the mansions, and at this time too, that such was actually the case.

We must now proceed to inquire into the true lunar character of this new epoch, March 31 at 18 h. or April 1 at 12 h. 43 m. 18 s. 4 B. C. 848; and that will oblige us to calculate the true new moon of March B. C. 848, for the meridian of Heliopolis, as we did that of April, B. C. 1847. The date of the mean conjunction of this month and this year, obtained from the Phoenix standard, was March 28, at 12 h. 56 m. 52 s. 634; but that of the true conjunction has yet to be determined. And as this too is an important lunation, and as closely connected with the mansions at this time as that of April B. C. 1847 was at first, there is just the same reason to exhibit this calculation in detail, as the former, already so proposed.

*Calculation of the new moon of March, B. C. 848, for the meridian of the ancient Heliopolis: second year of the cycle of leap-year; lunar epoch, April 29 at 12 h. A. D. 1801; interval, 2648 mean Julian years; secular correction, 26.48 centuries; interval, from the mean vernal equinox B. C. 4004 to the mean vernal equinox B. C. 848, 3156 years.*

i. SL	March 31	h. m. s.	0 47 52.8	Mean tabular V. E. B. C. 848
Correction	+	12 11 9.6		
	March 31	12 59 2.4		True mean V. E. at Jerusalem.
	—	2 20 47		
	March 31	10 38 15.4		At Greenwich.
	— 2	22 38 15.4		
	March 28	12 0 0		
SL =	360° 0' 0"			March 31 h. m. s. 10 38 15.4
	— 2 54 3.565			— 2d 22 38 15.4
SL =	357 5 56.435			March 28 12
ii. M L. Epoch	31° 13' 11.811			April 29 12 h. A. D. 1801
— 2648 years	— 333 24 47.783			
	57 48 14.028			
Correction,	+ 1 59 19.519			
ML	59 47 33.547			April 29 12 h. B. C. 848
	— 61 38 40.864			— 32 d
ML =	358 8 52.683			March 28 12

$$\begin{array}{l} \text{iii. S L'.} \\ \text{iv. M L'.} \end{array} \left. \vphantom{\begin{array}{l} \text{iii. S L'.} \\ \text{iv. M L'.} \end{array}} \right\} \text{ML} = 35^{\circ} 8' 52''.683 \quad \text{March 28 } 12^{\text{h.}}$$

$$\text{SL} = -357 \quad 5 \quad 56''.435$$

$$\text{ML} - \text{SL} = \text{D} = 1 \quad 2 \quad 56''.248 = 1^{\circ} 2' 56''.2$$

$$\begin{array}{rcl} \text{D} & = & 1^{\circ} 2' 56''.2 \\ \text{D}' & = & 4 \quad 42''.474 \\ \text{D}'' & = & 21 \quad 13^{\circ} 0' \\ \text{D}''' & = & 1 \quad 58^{\circ} 0' \\ \text{D}'''' & = & 0 \quad 118 \end{array} \quad \begin{array}{rcl} = & \text{T} & = 1^{\text{h.}} 54^{\text{m.}} 38^{\text{s.}} 118 \\ = & \text{T}' & = 8 \quad 34^{\circ} 50' 9'' \\ = & \text{T}'' & = 38.487 \\ = & \text{T}''' & = 2.878 \\ = & \text{T}'''' & = 0.215 \end{array}$$

$$\text{D D' D'' D''' D''''} = 1 \quad 8 \quad 1 \quad 502 = 2 \quad 3 \quad 54.207$$

$$\begin{array}{rcl} \text{SL} & = & 357^{\circ} 5' 56''.4 \\ \text{D' D'' D''' D''''} & = & -5 \quad 5.3 \end{array} \quad \begin{array}{rcl} \text{v. MT} & = & \text{Mar. 28 } 12^{\text{h.}} 0^{\text{m.}} 0^{\text{s.}} \\ \text{T T' T'' T''' T''''} & = & -2 \quad 3 \quad 54 \end{array}$$

$$\text{SL} = \text{ML} = 357 \quad 0 \quad 51.1 \quad \text{vi. MT} = \text{March 28 } 9 \quad 56 \quad 6$$

$$\begin{array}{rcl} \text{vii. AL Epoch} & 0^{\circ} 0' 0'' & \text{B. C. 4004 M. V. E.} \\ 3156 \text{ years} & = + 54 \quad 6 \quad 58.431 & -3156 \end{array}$$

$$\begin{array}{rcl} 54 \quad 6 \quad 58.431 & \text{B. C. 848 Mar. 31 } 10^{\text{h.}} 38^{\text{m.}} 15.4^{\text{s.}} \\ -0.514 & - & 3^{\text{d.}} 1 \end{array}$$

$$\text{AL} \quad 54 \quad 6 \quad 57.917 \quad \text{March 28 } 9 \quad 38.15.4$$

$$\begin{array}{rcl} \text{viii. PL Epoch} & 28^{\circ} 39' 4''.766 & \text{April 29 } 12^{\text{h.}} \text{ A. D. 1801.} \\ -2648 \text{ years} & -108 \quad 20 \quad 43.589 & \end{array}$$

$$\begin{array}{rcl} & 172 \quad 18 \quad 21.177 & \\ \text{Correction} & -7 \quad 21 \quad 44.417 & \end{array}$$

$$\begin{array}{rcl} \text{PL} & = & 164 \quad 56 \quad 36.760 \quad \text{April 29 } 12^{\text{h.}} \text{ B. C. 848.} \\ & - & 3 \quad 33 \quad 53.789 & - \quad 32^{\text{d.}} \end{array}$$

$$\begin{array}{rcl} \text{PL} & = & 161 \quad 22 \quad 42.971 \quad \text{March 28 } 12^{\text{h.}} 0^{\text{m.}} 0^{\text{s.}} \\ & - & 34.508 & - \quad 2 \quad 3 \quad 54 \end{array}$$

$$\text{ix. PL} = 161 \quad 22 \quad 8.463 \quad \text{March 28 } 9 \quad 56 \quad 6$$

$$\begin{array}{rcl} \text{x. NL Epoch} & 7^{\circ} 0' 14''.957 & \text{April 29 } 12^{\text{h.}} \text{ A. D. 1801.} \\ -2648 \text{ years} & + 96 \quad 42 \quad 53.798 & \end{array}$$

$$\begin{array}{rcl} & 103 \quad 43 \quad 8.755 & \\ \text{Correction} & -1 \quad 13 \quad 2.028 & \end{array}$$

$$\begin{array}{rcl} & 102 \quad 30 \quad 6.727 & \text{April 29 } 12^{\text{h.}} \text{ B. C. 848.} \\ + 1 \quad 41 \quad 40.367 & - & 32^{\text{d.}} \end{array}$$

$$\begin{array}{rcl} \text{NL} & = & 104 \quad 11 \quad 47.094 \quad \text{March 28 } 12^{\text{h.}} 0^{\text{m.}} 0^{\text{s.}} \\ & + & 16.402 & - \quad 2 \quad 3 \quad 54 \end{array}$$

$$\text{xi. NL} = 104 \quad 12 \quad 3.496 \quad \text{March 28 } 9 \quad 56 \quad 6$$

$$\begin{aligned}
 \text{xii. S A. S L} &= 357^{\circ} \ 0' \ 51''.1 \\
 - \text{A L}' &= -54 \ 6 \ 57.9 \\
 \hline
 \text{S A} &= 302 \ 53 \ 53.2 = 10^{\text{h.}} \ 2^{\text{m.}} \ 53.886
 \end{aligned}$$

$$\begin{aligned}
 \text{xiii. M A. M L}' &= 357^{\circ} \ 0' \ 51''.1 \\
 \text{P L}' &= -161 \ 22 \ 8.5 \\
 \hline
 \text{M A} &= 195 \ 38 \ 42.6 = 6^{\text{h.}} \ 15^{\text{m.}} \ 38'' \ 42.6 \text{ From Per.} \\
 &\quad \quad \quad \circ \ 15 \ 38 \ 42.6 \text{ From Apog.}
 \end{aligned}$$

$$\begin{aligned}
 \text{xiv. N D. S L}' &= 357^{\circ} \ 0' \ 51''.1 \\
 - \text{N L}' &= -104 \ 12 \ 3.5 \\
 \hline
 \text{N D} &= 252 \ 48 \ 47.6 = 8^{\text{h.}} \ 12^{\text{m.}} \ 48.793
 \end{aligned}$$

$$\begin{array}{rcll}
 \text{xv. E E' E'' E'''} & & & \\
 \text{E Argt. SA} &= & 10^{\text{h.}} \ 2^{\text{m.}} \ 53.886 & = + \quad 3^{\text{h.}} \ 28^{\text{m.}} \ 17.6 \\
 \text{E' .. MA'} &= & 0 \ 16 \ 57.67 & = + \quad 3 \ 3 \ 38.7 \\
 \text{E'' .. SA-MA'} &= & 9 \ 15 \ 56.2 & = + \quad 4 \ 46.1 \\
 \text{E''' .. N D} &= & 8 \ 12 \ 48.8 & = + \quad 54.6 \\
 \hline
 \text{E E' E'' E'''} & & & = + \quad 6 \ 37 \ 37.0
 \end{array}$$

$$\begin{aligned}
 \text{xvi. MT'' . MT'} &= \text{March } 28 \quad 9^{\text{h.}} \ 56^{\text{m.}} \ 6^{\text{s.}} \\
 \text{E E' E'' E'''} &= \quad \quad + \quad 6 \ 37 \ 37
 \end{aligned}$$

$$\begin{aligned}
 \text{MT''} &= \text{March } 28 \quad 16 \ 33 \ 43 \quad \text{At Greenwich, true mean time.} \\
 &\quad \quad + \quad 2 \ 5 \ 3
 \end{aligned}$$

$$\begin{aligned}
 \text{xvii. MT'''} &= \text{March } 28 \quad 18 \ 38 \ 46 \quad \text{At Heliopolis.} \\
 &\quad \quad - \quad 7 \ 43
 \end{aligned}$$

$$\text{xviii. MT''''} = \text{March } 28 \quad 18 \ 31 \ 3 \quad \text{Apparent time.}$$

It thus appears that the true time of the mean conjunction in this year and this month, for the meridian of Greenwich, was March 28, at 9 h. 56 m. 6 sec., and for that of Heliopolis was March 28, at 12 h. 1 m. 9 sec.; and the true mean time of the true conjunction for the former was March 28, at 16 h. 33 m. 43 sec., and for the latter March 28, at 18 h. 38 m. 46 sec.; so that for this latter meridian, that of Heliopolis, the time of the mean conjunction was almost exactly the same as the point of mean noon, and that of the true as the point of sunset, or 18 hours from midnight, March 28, B. C. 848; both which were remarkable coincidences. In either case, Thoth 11, the first lunar term in cycle vi. 1, æra cyc. 3159, the newly constituted epoch of the mansions, March 31 at 18 hours, B. C. 848, must have been the luna quarta.

By means of this calculation too we may judge of the



amount of the error entailed by the lapse of a thousand years on the constant reckoning of the mean lunar momenta according to the standard of the Phoenix period.

B. C. 848 we had	ML =	36° 27' 26.441	March 31	h. m. s.		
	—	39 54 53.698	— 3	12	43	18.4
By the calculation	ML =	356 32 32.743	March 28	12	1	9
	ML' =	357 0 51.133	March 28	12	1	9
Difference		=	28	18	390	

So that the mean longitude of the standard of the period at a given point of time, 999 years after the epoch, was only  $28^{\circ} 18' 390''$  in defect of the true mean longitude of the same point of time, obtained from the modern tables and modern formulæ. And this we may take it for granted would be too trifling a difference to be detected by observation. Consequently, the mean longitude of the period might not unreasonably be still considered as true for this epoch of B. C. 848 as for its original one of B. C. 1847.

That this was the actual difference between the mean lunar motion of the period and the true, at this particular epoch of B. C. 848, may further be made to appear as follows.

The middle point between B. C. 1847 and B. C. 847 was B. C. 1347. The mean standard of the lunar synodic month for B. C. 1347, calculated from formula, is found to be 29 d. 12 h. 44 m. 3 s. 848 238 65.

We have then, standard of the period,	d. h. m. s.					
	29	12	44	4.113	842	17
Standard of the middle point, between B. C. 1847 and B. C. 847	29	12	44	3.848	238	65
	Difference,					
				0.265	603	52

This difference, multiplied by  $12,368 - 12 = 12,356$  (the number of mean lunar months between April 2 B. C. 1847 and March 28 B. C. 848) amounts to 54 m. 41 s. 797 of mean solar time.

We have then the

12,357th lunation of the period .. ..	March 28	h. m. s.			B. C.
Anticipation of the middle standard ..	—	54	41	797	848
12,357th lunation of the mid. standard	March 28	12	2	10.837	
True mean new moon .. ..	March 28	12	1	9	
Difference .. ..				1	1.837



calculated that sunrise would take place about 5.14 apparent time, 5.17 mean time, exclusive of refraction, which would cause both to be anticipated about 2 m. 12 sec. The point for which we propose to calculate consequently is August 8 at 5.15 A. M. mean time; which probably cannot be far from the truth. We shall attempt the solution of the first of these problems by means of our own solar and lunar tables, and of the solar tables of Delambre, for A. D. 1810, (which differ only *per accidens* from our own,) from which we shall calculate the equation of the centre; and lastly, of the lunar tables of Mayer, edited and published by Maskelyne, A. D. 1770. B. C. 798 being the fourth year of the cycle of leap-year, our lunar epoch is April 29 at 12 h. A. D. 1803: the interval is 2600 years, and the secular correction, 25.98 centuries. From the mean vernal equinox B. C. 4004 to the mean vernal equinox, B. C. 798, the interval was 3206 years.

*Calculation of the true place of the sun and of the moon respectively, August 8 5 15 mean time B. C. 798 for the meridian of the ancient Heliopolis.*

			h.	m.	s.	
	March	31	3	29	52.8	Mean tabular V. E. B. C. 798.
Correction	..	..	+	12	11	9.6
	March	31	15	41	2.4	True mean V. E. at Jerusalem.
			—	15	44	
	March	31	15	25	18.4	At Heliopolis.
			+	129	13	41.6
	August	8	5	15		

				h.	m.	s.
SL		°	'	"		
	March	31	15	25	18.4	
		+	127	42	59.021	
SL	=	127	42	59.021	August	8 5 15

AL. 3206 years, }  
+ 129 d. 14 h. } .. — 54 58 46.808

SA	=	72	44	12.213	=	s.	°	'	"
						2	12	44	.20355 Ap.
						8	12	44	.20355 Per.

Equat. of the centre }  
Argument SA } — 1 43 15.4

	SL	=	127° 42' 59".021	August 8 5h. 15 m.
Equation of the centre		—	1 43 15.4	
	SL'	=	125 59 43.621	{ Sun's true place, Aug. 8, 5h. 15 m.
ML. Epoch	.. ..	289° 59' 11".523		{ April 29 12h. A.D. 1803 at Greenwich.
— 2600 years	.. ..	— 84 49 54.349		
		205 9 17.174		
Correction	.. ..	+ 1 54 58.231		
		207 4 15.405	April 29 12h. B.C. 798.	
		+ 250 48 57.727	+ 101 d.	
		97 53 13.132	August 8 12 0 0	
			+ 2 5 3	
			August 8 14 5 3	
		— 4 51 0.372	— 8 50 3	
	ML	=	93 2 12.760	{ August 8 5 15 at He- liopolis.
PL. Epoch	.. ..	1° 58' 35".570	April 29 12h. A.D. 1803.	
— 2600 years	.. ..	— 315 12 11.621		
		46 46 23.949		
Correction	.. ..	— 7 5 37.133		
		39 40 46.816	April 29 12h. B.C. 798.	
		+ 11 15 6.645	+ 101 d.	
		50 55 53.461	August 8 12 0 0	
			+ 2 5 3	
			August 8 14 5 3	
		— 2 27.625	— 8 50 3	
	PL	=	50 53 25.836	{ August 8 5 15 at He- liopolis.
NL. Epoch	.. ..	328° 20' 50".327	April 29 12h. A.D. 1803.	
— 2600 years	.. ..	+ 248 18 54.998		
		216 39 45.325		
Correction	.. ..	— 1 10 22.105		
	NL	=	215 29 23.220	April 29 12h. B.C. 798.
		— 5 20 54.284	+ 101 d.	
		210 8 28.936	August 8 12 0 0	
			+ 2 5 3	
			August 8 14 5 3	
		+ 1 10.171	— 8 50 3	
	NL	=	210 9 39.107	{ August 8 5 15 at He- liopolis.



$$\begin{array}{rcl} \text{SA.} & = & \begin{array}{r} 72 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} = \begin{array}{r} 2 \quad 12 \quad 44 \cdot 20355 \\ \hline \end{array} \\ \text{ML.} & = & \begin{array}{r} 93 \quad 2 \quad 12 \cdot 760 \\ \hline \end{array} \\ -\text{PL.} & = & \begin{array}{r} 50 \quad 53 \quad 25 \cdot 836 \\ \hline \end{array} \\ \text{MA.} & = & \begin{array}{r} 42 \quad 8 \quad 46 \cdot 924 \\ \hline \end{array} \quad \text{From perigee.} \\ & + & 180 \end{array}$$

$$\begin{array}{r} 222 \quad 8 \quad 46 \cdot 924 \\ \hline \end{array} \quad \text{From apogee.}$$

$$\begin{array}{rcl} \text{ML.} & & \begin{array}{r} 93 \quad 2 \quad 12 \cdot 760 \\ \hline \end{array} \\ -\text{SL'.} & = & \begin{array}{r} 125 \quad 59 \quad 43 \cdot 621 \\ \hline \end{array} \\ & & 327 \quad 2 \quad 29 \cdot 139 \quad \text{mean distance of } \textcircled{D} \text{ from } \textcircled{\odot} \\ & & \quad \quad \quad 2 \\ & & 294 \quad 4 \quad 58 \cdot 275 \quad \text{twice m. d. of } \textcircled{D} \text{ from } \textcircled{\odot} \\ & & = 98. 24^\circ 4' 58'' \cdot 275 \end{array}$$

*Arguments of the x Equations.*

$$\text{Argument of i Eq.} \quad \text{SA.} = \begin{array}{r} 2 \quad 12 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} = \begin{array}{r} 2 \quad 12 \quad 44 \cdot 20355 \\ \hline \end{array}$$

$$\begin{array}{rcl} 2 \text{ D of } \textcircled{D} \text{ from } \textcircled{\odot} & \text{..} & \begin{array}{r} 9 \quad 24 \quad 4 \quad 58 \cdot 275 \\ \hline \end{array} \\ & + & \text{SA.} + \begin{array}{r} 2 \quad 12 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} \end{array}$$

$$\text{Arg. of ii Eq.} \quad \text{..} \quad \begin{array}{r} 0 \quad 6 \quad 49 \quad 10 \cdot 488 \\ \hline \end{array} = \begin{array}{r} 0 \quad 6 \quad 49 \cdot 1748 \\ \hline \end{array}$$

$$\begin{array}{rcl} 2 \text{ D of } \textcircled{D} \text{ from } \textcircled{\odot} & \text{..} & \begin{array}{r} 9 \quad 24 \quad 4 \quad 58 \cdot 275 \\ \hline \end{array} \\ & - & \text{SA} \quad \begin{array}{r} 2 \quad 12 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} \end{array}$$

$$\text{Arg. of iii Eq.} \quad \text{..} \quad \begin{array}{r} 7 \quad 11 \quad 20 \quad 46 \cdot 062 \\ \hline \end{array} = \begin{array}{r} 7 \quad 11 \quad 20 \cdot 7677 \\ \hline \end{array}$$

$$\begin{array}{rcl} 2 \text{ D of } \textcircled{D} \text{ from } \textcircled{\odot} & \text{..} & \begin{array}{r} 9 \quad 24 \quad 4 \quad 58 \cdot 275 \\ \hline \end{array} \\ & + & \text{MA.} \quad \begin{array}{r} 7 \quad 12 \quad 8 \quad 46 \cdot 924 \\ \hline \end{array} \end{array}$$

$$\text{Arg. of iv Eq.} \quad \text{..} \quad \begin{array}{r} 5 \quad 6 \quad 13 \quad 45 \cdot 199 \\ \hline \end{array} = \begin{array}{r} 5 \quad 6 \quad 13 \cdot 7533 \\ \hline \end{array}$$

$$\begin{array}{rcl} 2 \text{ D of } \textcircled{D} \text{ from } \textcircled{\odot} & \text{..} & \begin{array}{r} 9 \quad 24 \quad 4 \quad 58 \cdot 275 \\ \hline \end{array} \\ & - & \text{MA.} \quad \begin{array}{r} 7 \quad 12 \quad 8 \quad 46 \cdot 924 \\ \hline \end{array} \end{array}$$

$$\begin{array}{rcl} \text{Arg. of v E. or the} & & \\ \text{Evection.} & \text{..} & \left. \begin{array}{r} 2 \quad 11 \quad 56 \quad 11 \cdot 351 \\ \hline \end{array} \right\} = \begin{array}{r} 2 \quad 11 \quad 56 \cdot 18918 \\ \hline \end{array} \end{array}$$

$$\begin{array}{rcl} \text{Arg. of v E.} & \text{..} & \begin{array}{r} 2 \quad 11 \quad 56 \quad 11 \cdot 351 \\ \hline \end{array} \\ & + & \text{SA.} \quad \begin{array}{r} 2 \quad 12 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} \end{array}$$

$$\text{Arg. of vi E.} \quad \text{..} \quad \begin{array}{r} 4 \quad 24 \quad 40 \quad 23 \cdot 564 \\ \hline \end{array} = \begin{array}{r} 4 \quad 24 \quad 40 \cdot 3927 \\ \hline \end{array}$$

$$\begin{array}{rcl} \text{Arg. of v E.} & \text{..} & \begin{array}{r} 2 \quad 11 \quad 56 \quad 11 \cdot 351 \\ \hline \end{array} \\ & - & \text{SA.} = \begin{array}{r} 2 \quad 12 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} \end{array}$$

$$\text{Arg. of vii Eq.} \quad \text{..} \quad \begin{array}{r} 11 \quad 29 \quad 11 \quad 59 \cdot 138 \\ \hline \end{array} = \begin{array}{r} 11 \quad 29 \quad 11 \cdot 9856 \\ \hline \end{array}$$

$$\begin{array}{rcl} \text{MA.} & & \begin{array}{r} 7 \quad 12 \quad 8 \quad 46 \cdot 924 \\ \hline \end{array} \\ -\text{SA.} & = & \begin{array}{r} 2 \quad 12 \quad 44 \quad 12 \cdot 213 \\ \hline \end{array} \end{array}$$

$$\text{Arg. of viii Eq.} \quad \text{..} \quad \begin{array}{r} 4 \quad 29 \quad 24 \quad 34 \cdot 711 \\ \hline \end{array} = \begin{array}{r} 4 \quad 29 \quad 24 \cdot 5785 \\ \hline \end{array}$$

NL.	=	<sup>s.</sup> 7 0 9 39.107	
-SL'	-	4 5 59 43.621	
Arg. of ix Eq.	..	2 24 9 55.486	= <sup>s.</sup> 2 24 9.9247
PL.		<sup>s.</sup> 1 20 53 25.836	August 8 5.15
		7 20 53 25.836	Longitude of the moon's
-SL'	-	4 5 59 43.621	apogee.
Arg. of x Eq.	..	3 14 53 42.215	= <sup>s.</sup> 3 14 53.7036

## Sum of the x Equations.

Positive.		Negative.
Eq. i.	= 0 10 43.210	
iii.	= 0 45.346	
iv.	= 0 21.771	
vi.	= 1 14.654	
viii.	= 0 17.000	Eq. ii. = 0 0 6.820
ix.	= 0 11.669	v. = 1 16 15.222
x.	= 0 44.790	vii. = 0 0.8
	14 18.440	- 1 16 22.842
		+ 14 18.440

$$\text{Sum of the x Equations} = - 1 2 4.402$$

MA.	=	<sup>s.</sup> 7 12 8 46.924	
Correction,	..	+ 22 5.157	Arg. SA. Precept 5. p. 123.
Sum of the x Eq.	..	- 1 2 4.402	
Arg. xi Eq.	..	7 11 28 47.679	= <sup>s.</sup> 7 11 28.79465
ML.		<sup>s.</sup> 93 2 12.760	August 8 5.15.
x Equations	..	- 1 2 4.402	
xi Eq.	..	+ 4 23 59.013	Equation of the centre.
ML.		96 24 7.371	{ ML. twice corrected or moon's equated longitude. Sun's true longitude.
-SL'	-	125 59 43.621	
Arg. of xii Eq.	..	330 24 23.750	= <sup>s.</sup> 11 0 24.3958
			The Variation.
ML. twice corrected		96 24 7.371	
xii Eq.	..	- 29 54.956	
		95 54 12.415	ML. thrice corrected.
NL.		<sup>s.</sup> 7 0 9 39.107	
Correction	..	+ 8 25.210	Arg. SA. precept 7. p. 123.
NL'	=	7 0 18 4.317	Equated longitude of the node.

Third corr <sup>n</sup> . of ML	..	<sup>s.</sup> 3	<sup>o</sup> 5	<sup>4</sup> 54	<sup>12</sup> 415	
-NL'	-	7	0	18	4.317	
		8	5	36	8.098	{ Equated distance of ) from node.
		4	11	12	16.196	{ 2 equated distance of ) from node.
- Arg. xi E.	-	7	11	28	47.679	Precept 7. p. 123.
Arg. xiii E.		8	29	43	28.517	= <sup>s.</sup> 8 <sup>o</sup> 29 <sup>43</sup> 47528.
Third corr <sup>n</sup> . of ML	..	<sup>o</sup> 95	<sup>54</sup>	<sup>12</sup> 415		
xiii E.	..	-	1	23		
ML. four times corrected	=	95	52	49.415		{ Longitude of moon in its orbit.
- NL'	-	210	18	4.317		Equated longitude of node.
Arg. of xiv E. The reduction		245	34	45.098		= <sup>s.</sup> 8 <sup>o</sup> 5 <sup>34</sup> 7516.
ML	..	<sup>o</sup> 95	<sup>52</sup>	<sup>49</sup> 415		{ Longitude of moon in its orbit.
xiv E.	..	-	5	3.787		
		95	47	45.628		
xv E.	..	+	9	0.48		{ Arg. NL. Precept 9. p. 124. Equation of the equinoxes.
		95	47	54.676		{ True longitude of the moon in the ecliptic.

The result of these calculations is that the sun's true place, at the time in question, was

		<sup>o</sup> 125	<sup>59</sup>	<sup>43</sup> 621
And the moon's	..	95	47	54.676
Consequently the moon's	} distance from the sun	30	11	48.945

i. e. only 11' 49" greater than what was supposed in the doctrine of the *genitura mundi* itself, respecting the position of the sun and the moon, relatively to their proper houses and to each other, at the same point of time. The assumed place of the sun indeed, according to this doctrine, appeared to be 127° 0' 0"; and that of the moon to be 97° 0' 0" exactly; and that would be one degree more in each instance than the true place according to our calculation. It is manifest then that these assumed places could not have been the true; and yet that even the true, at this point of time, were actu-

ally standing nearly in the same relation to each other as these assumed places themselves ; for  $125^{\circ} 59' 44''$  is almost in the same relation to  $95^{\circ} 47' 55''$  as  $127^{\circ} 0' 0''$  to  $97^{\circ} 0' 0''$  : and each is as nearly as possible 30 degrees, or one sign, more or less, than the other.

It remains then to explain, if possible, this difference of one degree, between the true place and the assumed place in each instance. Now the most probable explanation in the first of these instances is a faulty estimate of the equation of the centre ; i. e. of the difference between the sun's mean place and the true. The sun's mean place, Aug. 8, 5 h. 15 m. for the meridian in question was  $127^{\circ} 42' 59''.021$ , or, as it may be assumed,  $127^{\circ} 43'$ . The equation of the centre, calculated from the solar tables of Delambre, of the epoch of A. D. 1810, was  $1^{\circ} 43' 15''.4$ , and negative ; that is, just  $43'$  greater than one degree : so that, did we suppose it assumed at  $43'$ , the sun's true place, obtained from the mean place and the equation of the centre, at this point of time, would appear to be  $127^{\circ}$  exactly. This appears to us the most probable explanation of this part of the difference between the assumed place in each of these instances and the true ; viz. that which affects  $SL'$ , or the sun's true place at the time ; though we leave our readers to judge of the probability of the explanation for themselves.

With regard to the moon's true place, it is observable that the principal equations which we are required to take into account, in solving such problems as these according to the method prescribed by astronomers at present, in this instance, all but the equation of the centre, are negative ; and two of them, the evection and the variation, are very considerable of their kind. The joint effect of the negative equations, above the positive, (all but the equation of the centre,) in the preceding calculation is to diminish the mean longitude of the moon more than  $1^{\circ} 30'$  at least.

With regard to these three lunar equations—the equation of the centre, the evection, and the variation—it does not appear that any of them was known to the astronomers of antiquity but the equation of the centre, which Ptolemy calls the first anomaly or first inequality ; and of which he ob-



serves distinctly ἡ μὴν καὶ πάντες σχεδὸν οἱ πρὸ ἡμῶν ἐπιβεβληκότες φαίνονται<sup>d</sup>. The second anomaly (the equation to which Boulliau first gave the name of evection) was first pointed out by Ptolemy himself; and from the time of this observation, but not before it, two of these inequalities or equations might be said to be known, the equation of the centre and the evection; but no more. The third equation, which is called the variation, was unknown to the astronomers of Europe down to the time of Tycho Brahe, by whom it was first discovered; though there is reason to believe that Aboul Wéfa, an Arabian astronomer of Bagdad, A. D. 975–998, was aware of it. The fourth equation, or the annual equation, appears to have been *still* unknown or still unexplained down to the time of Kepler.

It may be inferred from Geminus' account of the anomalous period of the Chaldeans, and of the method by which they determined the cycle of the lunar anomalies<sup>e</sup>, that the equation of the centre must have been known even to them with tolerable exactness. It appears to us therefore that, in calculating the moon's place in this instance, so as to make it agree with the actual assumptions of the time, we should be bound to leave every equation out of the account except the equation of the centre. Now, by the preceding calculation we had

$$\begin{array}{rcll} \text{ML} = & 93 & 2 & 12.760 \quad \text{August 8} \quad \begin{array}{l} \text{h.} \quad \text{m.} \\ 5 \quad 15 \end{array} \\ \text{Equation of the centre} = & + & 4 & 23 \quad 59.013 \end{array}$$

$$\text{Whence we obtain, ML}' = 97 \quad 26 \quad 11.773 \quad \text{August 8} \quad \begin{array}{l} \text{h.} \quad \text{m.} \\ 5 \quad 15 \end{array}$$

and this would be only 26' or 27' greater than the required longitude, 97° 0' 0" exactly.

Now this difference too would disappear, if the mean longitude of the moon, for the epoch in question, August 8 at 5 h. 15 m. B. C. 798, were supposed to have been calculated according to some standard of the mean lunar momenta, which differed at this time from the true, at the same point of time, by not less than 26' or 27'. And such was the difference which existed at this very time between the mean lunar momenta of the Phoenix period, and the true, as determinable from those of our own tables and the formula for

<sup>d</sup> Magna Compositio, iv. iv. 238.

<sup>e</sup> Supra, p. 524.

the secular correction. It is evident therefore that, if we must calculate the moon's place at the epoch in question, conformably to the assumptions of the time, it must be in the first place from the data supplied by the Phœnix period. And though these must necessarily be in error, at this distance of time from the epoch of the Phœnix cycles, yet the error, even at this time, could not exceed 30' in defect of the truth. But, whether in error or not, if the moon's mean place, August 8 at 5 h. 15 m. B. C. 798, was actually determined in conformity to the principles of this Phœnix period, nothing else, it is evident, will be true in point of fact but the actual place so determined. We shall conclude therefore with this calculation, both from the epoch of the mean vernal equinox, B. C. 1847, and from that of April 8 at mean noon, the same year.

- i. *Calculation of ML, or the moon's mean longitude, August 8 at 5 h. 15 m. A. M. B. C. 798, in the mean longitude of the Phœnix period, from the mean vernal equinox, B. C. 1847.*

*Mean vernal equinox B. C. 1847 to the mean vernal equinox B. C. 798*  
*= 1049 mean tropical years.*

		Mean vernal equinox.			B. C.	
		h.	m.	s.		
ML	=	74	33	12.828	April 8	1847
		12	32	8.8		
+ 1049 years		110	37	39.701	— 1000	
		185	10	52.529	Mar. 31	798
		15	25	18.4		
		267	20	46.612	+ 129 <sup>d</sup>	
		13	49	41.6		
ML	=	92	31	39.141	Aug. 8	798
		5	15			

- ii. *Calculation of ML, or the moon's mean longitude August 8 at 5 h. 15 m. A. M. B. C. 798, in the mean longitude of the Phœnix period, from April 8 12 h. B. C. 1847.*

		h.	m.	s.	B. C.	
		8	12	0 0		
ML	=	74	15	33.885	April 8	1847
		163	48	49.570	+ 121 <sup>d</sup>	
		238	4	23.455	Aug. 8	1847
		5	15			
		129	22	56.992	+ 365 <sup>d</sup>	— 1
ML	=	7	27	20.447	Aug. 8	1846
1048 y.	= +	85	4	18.693	— 1048	
ML	=	92	31	39.140	Aug. 8	798
		5	15			

The mean longitude therefore of the period was	92	31	39.141
The true was .. .. .	93	2	12.760
The difference was .. .. .	30	33.619	
Now the assumed place being .. .. .	97	0	0
And the calculated place being .. .. .	92	31	39.141
The difference was .. .. .	4	28	20.859

And this we must suppose was the assumed magnitude of the equation of the centre, at the same point of time. It must therefore have approached very nearly to the true :

Assumed equation of the centre .. .. .	4	28	20.859
True equation of the centre .. .. .	4	23	59.013
Difference .. .. .	4	21.846	

#### SECTION XI.—*Synopsis of the lunar mansions, Egyptian, Chinese, Hindu, and Arabian.*

We consider these points therefore to have been sufficiently explained and illustrated. Nor shall we now hesitate to assume that for the reasons assigned, and in particular in order that the epoch of the mansions might coincide with that of the Apis cycle in the decursus of its second secular period of 125 years, the second revision both of the sphere and of the mansions was anticipated by one year. And as there is no proof that either of them underwent any fresh revision after this among the Egyptians, this is the proper time to exhibit a synopsis of the mansions; embodying the modifications which they successively experienced. This therefore we shall proceed to do; beginning at the epoch of the original type, B. C. 1847, but bringing the synopsis down to A. D. 1802, in order to shew the form which the mansions would be found to have assumed had they been continued in being to the present day. We fix upon this year A. D. 1802, because it is the first, since the commencement of the century, which stands at the distance of a complete number of cycles of leap-years from B. C. 1847.

Forasmuch too as the type of B. C. 848, last laid down, is that which passed to the Hindus, the Chinese, and the Ara-

bians, and to the rest of the nations of the east and of antiquity, distinct from the Egyptians; we consider it necessary to include in this synopsis not only the Egyptian mansions, under their proper names, as they appear to have been imposed at the time of this last revision, but the Arabian, the Chinese, and the Hindu also, under their proper names likewise, and in their proper order at present. We shall find this to be very useful, for the sake of the observations which we shall be obliged hereafter to make upon them.



*Synopsis of the Lunar Mansions of the Egyptians, in four types, from B. C. 1847 to A. D. 1802.*

or at 4 h. 53 m. 42 s. P. M.	29	12	25	7	20	3	16	30	12	25	7	20	3	16	29	11	24	7	20	2	15	28	10	23	8	21	3	16	29
------------------------------	----	----	----	---	----	---	----	----	----	----	---	----	---	----	----	----	----	---	----	---	----	----	----	----	---	----	---	----	----



SECTION XII.—*Observations on the above synopsis.*

Upon the preceding synopsis we remark, i. That though we speak of these as four different types of one and the same scheme; (from the first, which is that of the epoch, B.C. 1847, to the fourth, that of A. D. 1802, such as the first itself would then have been found, had it been continued down to that time;) in reality of a scheme of the lunar mansions, properly so called, there can be only one type, which from the necessity of the case must be always the same; and this type such as was laid down by the Egyptians at the epoch, B. C. 1847; and such as stands at the head of our synopsis. The epoch of such a scheme is a fixed point, always the same in itself; the epoch of mean longitudes, the epoch of right ascensions; the point of the mean vernal equinox, the zero of the ecliptic itself; that which is technically called by astronomers the first point of Aries, and which is denoted by  $0^{\circ} 0' 0''$ .

The entire succession of mansions being dated from this point, and the length of each being a 28th part of the ecliptic; one scheme of the succession having been once laid down all round the sphere, it must be ever after the same and invariable. The proper type of such a scheme must be perpetual. The mansions, so laid down, and so succeeding each other, could never vary in comparison of themselves, or in relation to one another; though they might, or rather they must, do so in reference to any thing else distinct from themselves. The epoch of the mansions themselves, by virtue of the law of precession, must fall back on the ecliptic perpetually: and therefore the distances of the mansions from any of the fixed stars must constantly become greater and greater. But this would make no difference to their relations one to another; all of them being affected in that manner, and to the same extent, alike. The first type in our synopsis then is the proper lunar type of the mansions. It is the proper type of a scheme like this of the mansions, reckoned from  $0^{\circ} 0' 0''$  of the sphere perpetually; and it is as true of the epoch of A. D. 1802, as of that of B. C. 1847. It is, at once both an invariable and a variable type; invariable with re-

spect to itself, variable with respect to any thing distinct from itself, like the *loci* of the fixed stars, or any absolute and immutable point of space.

ii. The three types which enter our synopsis, next in order to this, are consequently not lunar, but sidereal. They are the proper and original lunar type, as subsequently affected by precession; and the more so, the longer it is supposed to have continued in use. The mean longitude of the first mansion in that type was  $0^{\circ}0'0''$ : its mean longitude in the second type is  $6^{\circ}57'14''\cdot7705$ : and this is the amount of the mean precession in 500 mean natural years. Its mean longitude in the third type is  $13^{\circ}54'29''\cdot541$ : and that is the amount of the mean precession in 1000 years. Its mean longitude in the fourth type, (that which is accommodated to the epoch of A. D. 1802,) is  $50^{\circ}44'13''\cdot685568$ ; and that is the total amount of mean precession, according to the annual rate thereof assumed in our table, in 3648 years; that is, from B. C. 1847 to A. D. 1802.

The astronomer does not require to be told, though the general reader may, that it is not these three last types which have advanced on the first, nor yet the first which has receded on itself, in each of these instances; but it is the epoch of mean longitude which has fallen back a certain number of degrees upon its original place on the ecliptic B. C. 1847. It is not necessary that this epoch, (which in itself is only the intersection of the ecliptic or equinoctial, and the equator,) should be defined and pointed out at a given time by a star. A point of the sphere itself, or of the heavens referred to the sphere, is competent to define it. But it so happened, B. C. 1847, that a star was actually standing on the epoch of mean longitude, the intersection of the ecliptic and the equator in the first point of Aries, with which the sun too was in conjunction at the time; and that star, as we have seen, was  $2\tau$  Arietis. The *loci* of the fixed stars may be supposed immutable, though they are not absolutely so: and this being supposed to be the case with the *locus* of  $2\tau$  Arietis, B. C. 1847; this star, which at the epoch of our first type of the mansions was standing in the first degree of that mansion, in  $0^{\circ}0'0''$  of the ecliptic, 500 years afterwards, at the epoch



of our second type, would be found to be standing in  $6^{\circ} 57' 14''.771$  of the ecliptic, and consequently in the seventh degree of the first mansion: so that it would appear at first sight as if it had changed its place in the mansion, from the first degree to the seventh, without in reality having shifted its place at all. Forasmuch too as the precession of the mean sidereal year on the mean Julian in 500 years, according to our tables, would amount to 3 d. 4 h. 19 m. 43 s. 727; it follows that if the sun was in conjunction with  $2\tau$  Arietis on April 8 at mean noon, for the meridian of Heliopolis, B. C. 1847; it would be in conjunction with it again 500 years afterwards, April 11 at 4 h. 19 m. 43 s. 7 after mean noon. And this would go on perpetually, at the same rate for every 500 years; except so far as the specific effect of the two miracles of Scripture, B. C. 1520 and B. C. 710, and the descent of the Julian epoch one day after B. C. 672, was calculated to interfere with it. And since the total amount of the precession in question, from B. C. 1847 to A. D. 1802, (3648 years\*) even after deducting two days for the anomaly alluded to, would still be 21 d. 4 h. 53 m. 42 s., it follows that if the sun was in conjunction with  $2\tau$  Arietis, for the meridian of Heliopolis, April 8 at mean noon, B. C. 1847, it would be so again, for the same meridian, April 29 4 h. 53 m. 42 s. after mean noon, A. D. 1802.

iii. The first of the types in our synopsis then is properly the lunar one. The three last are sidereal in contradistinction to lunar. Their nature is such that, wheresoever any

*\* Supplementary tables.*

<i>Mean sidereal years.</i>			<i>Mean Julian years.</i>		
	d.	h. m. s.		d.	
3000 =	1 095 769	1 58 22.363	3000 =	1 095 750	
600 =	219 153	19 35 40.473	600 =	219 150	
40 =	14 610	6 6 22.698	40 =	14 610	
8 =	2 922	1 13 16.540	8 =	2 922	
3648 =	1 332 455	4 53 42.074	3648 =	1 332 432	
	1 332 432				
	23	4 53 42.074			
Subtract	2				
	21	4 53 42.073			

star stood relatively to any one mansion at the epoch B. C. 1847, (whether in the first degree of the mansion or in any other,) they shew where it would be found standing relatively to the mansions every 500 years afterwards; that is, in what degree of the same mansion, or, if not of the same mansion, of the next to it; and so on, perpetually. That is, they shew the constant advance of the stars in and among the mansions in one direction, produced by the constant recession of the epoch of mean longitudes in the opposite direction.

The Julian dates, attached to the mansions in these different types, on this principle, will be easily understood. It will be perceived that they are cyclically reckoned in each type, at intervals of 13 Julian terms asunder, all round the sphere; except in the case of the viiith mansion, which is reckoned at 14 days perpetually in each of our types; and in that of the xxviiiith, which in the leap-years of the Julian period connected with these schemes must be reckoned at 14 days also. But it will also be observed that, beginning with April 8, the first term of this description in the first type, they go on rising successively three days; first, in the second type, from April 8 to April 11, and then in the third, from April 11 to April 14; and so on, down to A. D. 1802: when the first Julian term, instead of April 8, appears in the form of April 29. The reason is that these are properly sidereal dates; that is, if a particular star could be supposed to have been standing in the first degree of each of the mansions in the first type, at the epoch, B. C. 1847; the sun, having been in conjunction with the first on April 8 at mean noon, would be in conjunction with the next, by mean motion, 13 days later, on April 21; and with the next to that, 26 days later, on May 4: and so on, all round the mansions. And in like manner, at the epoch of the second type, the same stars, which stood in the first degrees of their respective mansions before, being now supposed to be standing in the seventh; the sun would be in conjunction with each in its turn again three days, cyclically reckoned, later than before; with the first on April 11, instead of April 8, with the second on April 24, instead of April 21; and so on: the whole effect of this gradual advance of the sidereal dates in terms of the

Julian, produced from first to last, being such as we represent in the ivth type, A. D. 1802; the first sidereal term of which is April 29, the next May 12, and so on.

To conclude therefore this part of our remarks. As we assume that  $2\tau$  Arietis was standing on the epoch of origination of all these types, B. C. 1847, and consequently in  $0^{\circ} 0' 0''$  of the ecliptic; so it is a necessary consequence of this assumption that A. D. 1802, at the proper epoch of the fourth type, it must, or it ought to be, standing in  $50^{\circ} 44' 13''$  686. And that is as nearly as possible the actual longitude of that star, A. D. 1802, as laid down in the most accurate maps of the heavens: from which it follows that the assumption on which we proceeded, with respect to its place B. C. 1847, must have been agreeable to the truth.

iv. It will be seen, from the comparison of these different types, that the mean longitude of the xxviii<sup>th</sup> mansion in type i, B. C. 1847, is  $347^{\circ} 8' 34''$  286: and in type iii, at the epoch of B. C. 847, is  $1^{\circ} 3' 3''$  827. Consequently B. C. 848, the year before this, it was  $50''$  07 less: that is,  $1^{\circ} 2' 13''$  76. This is rather more than one degree above  $0^{\circ} 0' 0''$ : that is, than one day's mean motion. And as the Julian epoch, to which this third type was actually attached B. C. 848, viz. April 1, was one day later than the Julian date of the mean vernal equinox the same year, March 31; it is manifest that the longitude of this mansion, and its Julian date at that particular point of time, were consistent one with the other. The sun would actually enter this mansion, April 1 B. C. 848.

The mean longitude of this mansion too,  $1^{\circ} 2' 13''$  76 differs so little from  $0^{\circ} 0' 0''$ , that, supposing the xxviii<sup>th</sup> mansion of this third type, attached to April 1, to have been now assumed as the 1<sup>st</sup>; the scheme of mansions, which would thus come into existence B. C. 848, attached to this epoch of April 1, and to this mean longitude of  $1^{\circ} 2' 13''$  76, might appear to be almost a republication of the original scheme, of the epoch of B. C. 1847, attached to April 8 and to the mean longitude of  $0^{\circ} 0' 0''$ . One consequence however would necessarily result from this assumption: viz. that, though little apparent change would seem to be thus introduced into the longitudes of the mansions of type i, their numerical

order and succession would be altered: and the effect would be exactly the same as if each mansion, in the original scheme of type i, had been advanced a 28th part of the ecliptic, and had taken the place of the mansion immediately preceding it. For it is evident that, by virtue of this new arrangement, the xxviii<sup>th</sup> of the first type would become the 1<sup>st</sup> of the third; and the first of the former, the second of the latter. The consequence of this would be that, if the sun had been regularly in conjunction at a stated time with a given star at the ingress of the 28th mansion of type i, it would now be regularly in conjunction with it at the ingress of the 1<sup>st</sup> mansion of this new type. If there was such a star B.C. 1847; A. D. 1802 it must be found in longitude  $37^{\circ} 52' 47''$ . 971, type iv. And this is only three degrees more than the actual longitude of  $\alpha$  Arietis A. D. 1802. This latter star also is only  $4^{\circ} 28' 18''$  more to the east than  $\gamma$  Arietis, and only  $3^{\circ} 41' 19''$  more than  $\beta$  Arietis, (according to Flamsteed;) the two stars which the Arabian writers invariably designate as those of the Xartân, Shartân, or Al Sheratein, (the initial or epochal stars,) of the third and last type of the mansions, that of the date of B.C. 848; which passed from the Egyptians to the Arabians themselves. As the first type then, to find its proper Xartân, (or epoch,) did not travel out of the Ram; so neither did the third: and as the former sought it in the nearest stars to the vernal colure, so did the latter: but the former found it in the last of the stars which ultimately went to the constellation of the Ram, the latter in the first.

v. It is necessary also to observe that though the Julian dates, attached to this third type, according to the same analogy as those of the two preceding ones, begin with April 1, and proceed accordingly all round the mansions; and though this would be in perfect accordance to the truth B. C. 848; yet after B. C. 672, for the reason which we have so often explained, they must all drop one day; the first from April 1 to March 31, and all the rest in the same proportion. For this reason we have lowered these dates one day all through the Egyptian scheme of the third type which we compare more particularly with the Arabian: so that the



form of that scheme, in this respect, is that which it assumed B. C. 672, not B. C. 848. Its form, B. C. 848, may be collected from the third type. Moreover, since it appears to have been of the essence of this delineation of mansions from the first, that every seven mansions, reckoned in degrees, should just equal a fourth part of the ecliptic, and reckoned in days, a fourth part of the Julian year of 365 days at one time and of 366 at another; it is manifest that every seven mansions must have contained 90 degrees and 91 days at least: and unless each quarter of the year consisted of 91 d. 7 h. 30 m., some seven mansions must have contained 92 days every year, and some other seven 92 days every fourth year. In the Egyptian scheme of the calendar of Mazzaroth we have seen no reason to conclude that the quarters of the year were ever divided and laid down on this principle of allowing 91 d. 7 h. 30 m., (that is, a fourth part of the mean Julian year,) to each exactly; but on the contrary, that they were all cyclically reckoned, and in integral days: and that 92 days were given to the spring quarter in every year, and 92 days to the winter quarter in the leap-years. For which reason we give an extra day to our viith mansion every year; and another to our xxviiiith every fourth year. The Arabians, as we have seen, gave the entire day in the common years to their xivth mansion; and in the leap-years to their xxviiiith.

### SECTION XIII.—*On the names of the mansions, and on their sidereal characters.*

It is proper that we should now proceed to give some account of these mansions, as thus supposed to have been laid down on the last occasion B. C. 848: and in particular of the names of each, and of the sidereal characteristics of each; i. e. of the stars by means of which they must have been defined and designated at this time.

With regard to the names of the mansions, it may very well be demanded whether the mansions had any names assigned them when they were first delineated in type i? or if not then, whether at the epoch of the second Phœnix period, when they were revised for the first time, and when

names were given to the signs of the ecliptic? We have not been able to satisfy ourselves that the mansions in general had received any names, down to the epoch of the third type. They have names at present, and always have had, since any thing particular was known about them; but these are such in several instances as necessarily to imply that they could not have belonged to any mansions but those of the third type. We have seen reason in fact to conclude that names were given to the mansions in general only at the epoch of this type; though we still consider it exceedingly probable that particular mansions might have names of their own even from the first. The seventh mansion, for instance, which is called the cubit mansion for a particular reason at present, was just as likely, for that same reason, to have been so called from the first. As a general rule however, we are altogether of opinion that they were distinguished asunder at first solely by their number, and by their order of succession: and that proper names were given them only when the finishing hand was put to the katasterization of the zodiac itself; that is, B. C. 848. The Coptic names, which have been handed down to us along with the type of that date, bear internal evidence that they were expressly contrived for that type: and yet even these, as we shall see by and by, have not remained all along such as they were at first imposed; but have been altered in several instances.

As to the sidereal characters of the different mansions, or the stars which were to be found in or about them, at the epochs of our different types, it is not possible, as we have shewn, for the same stars to be confined to the limits of the same mansions perpetually; unless the longitudes of the mansions and those of the stars within them are supposed to be alike subject to the law of precession, and one to advance at the same rate as the other: but, supposing that to be the case, the place of a given star relatively to a given mansion would be always the same. For instance, if the mean longitude of the first mansion, A. D. 1802, may be assumed at  $50^{\circ} 44' 13.686''$ ; there can be no doubt that  $2\tau$  Arietis must be found on the first degree of that mansion, A. D. 1802, at the epoch of our last type as much as B. C.

1847, at that of our first; though the former is 3648 years younger than the latter.

The same stars then and the same mansions, once associated in a particular manner with each other, on this principle might continue to be so associated ever after. But the question is, What stars would be so associated and with what mansions? particularly at first, and by the Egyptians themselves, the first authors of the mansions. To this question we can return no positive answer. But the only satisfactory mode of answering it at present is that which common sense itself suggests; viz. to reduce the heavens first of all to the sphere of B. C. 1847, and to divide the ecliptic into 28 equal parts; and then to mark the stars which coincide with those divisions; especially the brightest and most remarkable of them, and the nearest to the beginning or to the end or to the middle of those divisions themselves: for these would be the most likely to be fixed upon, as the proper stars of each mansion, in the first instance.

But when the mansions passed from the Egyptians, and from the latitude and meridian of Heliopolis or of Thebes or of Memphis, to the Arabians, the Chinese, or the Hindus, to much different latitudes and much different meridians; it stands to reason that though the Egyptian division of the ecliptic might be thus transmitted, and might undergo little or no change, the sidereal characters of these divisions in particular would be the most likely of all to be changed. The same stars could not be visible at the same time or under the same circumstances every where; nor even visible at all every where alike. And as we may very well add, in reference to this particular period in the history of the world, the same stars would not be the objects of reverence or of superstition with a special and exclusive reference, every where. It might reasonably therefore be expected even *a priori* that, where-soever the mansions might be carried, different nations would choose their own stars for the purpose of associating them with them: and it ought not to surprise us if it turns out that they must actually have done so: and that consequently the sidereal characters of the mansions, in these derivative or borrowed types, are not such in every instance as to be

easily reconcilable to the original scheme of the first authors of the mansions themselves; nor such combinations of particular stars with particular mansions as *they* were most likely to have made.

SECTION XIV. *On the verification of the third type of the Egyptian mansions.*

We have already observed that the lunar type of the mansions, properly so called, from the nature of the case, is fixed and invariable, and applicable to all times and to all epochs alike; and that consequently the proper lunar type of the epoch of B.C. 848 could not differ from that of the epoch of B.C. 1847 itself. The Arabian scheme of the mansions is that which has retained most of the external character and appearance of the original Egyptian type, particularly in the names and order of the mansions; and therefore it is one of the fittest which we could select for the sake of comparison with the Egyptian. There is an Arabian author, still extant, of the name of Aben or Ebn Ragel, whose age appears to have been about A. D. 1250<sup>x</sup>: and in the viith part of his work, (which was in viii books or parts, and on the subject of astrology,) there is a long account of the lunar mansions<sup>y</sup>. Some parts of this have been quoted by Kircher in his *Lingua Aegyptiaca restituta*<sup>z</sup>; to judge from which, there seems to have been little or no difference between his scheme of the mansions, and that of our first type. But that the reader may form his own opinion on that point, we shall produce these statements of his, just as they are given by Kircher himself.

i. Of the viith mansion in Kircher<sup>a</sup>, *Al-Henaah* in the Arabic:

Alhenaah lunæ statio est quam vocant scapulas Geminorum. incipit autem a decimo septimo et terminatur in trigesimo Geminorum.

That is, its limits were 77° and 90°; and these are the

<sup>x</sup> Bailly, *Astronomie Moderne*, tom. i. *Éclaircissement*, Liv. v. § xxix. p. 603.

<sup>y</sup> Cf. Beck's *Ephemerides Persa-*

*rum*, lib. ii. cap. v. § 11. p. 25.

<sup>z</sup> Vol. ii. cap. v. p. 559-567.

<sup>a</sup> *Ibid.* 563.



limits of our viith mansion, type i,  $77^{\circ} 8' 34'' \cdot 286$ , and  $89^{\circ} 59' 59'' \cdot 999,995$ .

ii. Of the xith mansion in Kircher, *Algebbet*<sup>b</sup> :

*Algebbet lunæ mansio est in signo Leonis : et est frons Leonis. initium ejus nonus gradus Leonis, finis 21 ejusdem.*

That is, its limits were  $129^{\circ}$  and  $141^{\circ}$ ; and these are those of the xith mansion in our first type also,  $128^{\circ} 34' 17'' \cdot 143 - 141^{\circ} 25' 42'' \cdot 857$ .

iii. Of the xith mansion in Kircher, *Al Kolb*<sup>c</sup> :

*Al Kolb lunæ statio est in dodecatemorio Scorpii, et vocatur cor Scorpii. initium ejus vigesimus primus gradus Scorpii finis quartus Sagittarii.*

That is, its limits were  $231^{\circ} - 244^{\circ}$ ; and these are the limits of the xith mansion in our first type also,  $231^{\circ} 25' 42'' \cdot 857 - 244^{\circ} 17' 8'' \cdot 571$ .

Now though Kircher has specified no more particular descriptions of this kind from this author, yet these are sufficient to illustrate his mode of dividing and reckoning the mansions; and to shew that it could not have been materially different from that of our own type i. Are we then to infer from this coincidence that type i of the Egyptian scheme was still preserved among the Arabians in the time of Aben Ragel? By no means: only that they had a similar type, similarly derived from the ecliptic, and agreeing in that respect both with our type i of the epoch of B. C. 1847, and with our type iii of the epoch of B. C. 848: from which it will follow that, whatsoever differences the sidereal characters of the Arabian scheme of the mansions may exhibit in comparison of those of the Egyptian, they must be accidental; they cannot affect the substantial and essential agreement of the schemes themselves.

However, as we have observed, we propose to take this Arabian scheme, with its proper sidereal characteristics also, as the subject of comparison, in the first instance, with the Egyptian, supposed to be represented by our own from B. C. 1847 down to B. C. 848; and in particular with our third type, of the epoch of B. C. 848 itself. And forasmuch as, with a view to this comparison, it is necessary to fix on some Arabian account of the mansions and of their sidereal charac-

<sup>b</sup> Kircher, *Lingua Ægyptiaca restituta*, ii. cap. v. p. 564.

<sup>c</sup> *Ibid.* 565.

ters, whichsoever may be considered the most authentic and trustworthy of all; we have selected Ulugh Beigh's as the most likely to answer to that description.

Ulugh Beigh's catalogue of the fixed stars was compiled for the beginning of Hej'ra 841<sup>d</sup>, the first year of the xxixth cycle of Hej'ra; which corresponded to July 4 A. D. 1437 in the astronomical reckoning of the æra. Between this epoch and that of the last of our types, the mean vernal equinox, March 11, A. D. 1802, the interval was 365 years 115 days; and in that interval of time precession, at the annual rate of our tables, amounted to  $5^{\circ} 4' 19''.617$ . So that as a general rule, to reduce the longitudes of Ulugh Beigh to those of our fourth type, we shall have to increase them by  $5^{\circ} 4' 19''$ .

---

## CHAPTER X.

*Comparison of the Arabian mansions with the Egyptian of type iii B. C. 848; and of the names and dates of each.*

---

### SECTION I.

WE have no account of the ancient Egyptian names of the mansions, different from the modern Coptic ones, if modern they may be called. These last therefore are all which we can compare with any thing else of the same kind at present. Athanasius Kircher's account of them was taken from the author of the *Scala Magna*. We must trust implicitly to the accuracy of his version of these names in each instance; though as far as we can judge of it for ourselves, (and some of the names are intelligible even to one who is ignorant of the Coptic language, from their resemblance to the Greek,) it appears to us to be faithful and correct\*.

\* This list of Kircher's, in juxtaposition with the Arabic also, is given in the Memoir of Mons. de Guignes, on the origin of the zodiac and of the calendar of the people of the East, (*Mémoires de l'Académie des Inscriptions*, xlvii. P. ii. 406). The name of the third mansion in this list is Exastran, as well as Orias; and that of the nineteenth is Siot, as well as Agghia. In all the rest it agrees with ours.

<sup>d</sup> Hyde, *Syntagma, Caput De Cognoscendis stellarum fixarum locis, secundum longitudinem et latitudinem*, p. 4.

It has happened however, for some reason or other, that Kircher's enumeration of the mansions begins with the xxviii<sup>th</sup> of type iii (B. C. 848) the xxviii<sup>th</sup> of type i (B. C. 1847); which no doubt must be in error. There can be no question that the first mansion in the type of B. C. 848 was the Xartân, or Al Sheratân, of the Arabians; answering to the Pikutorion of the Egyptians, the second in Kircher's list. We conjecture that this confusion is ultimately to be resolved into the fact (already adverted to) that the xxviii<sup>th</sup>, in the original Egyptian type, answered to the 1<sup>st</sup> in the third. We shall however treat the 2<sup>d</sup> of Kircher's list as *de facto* the 1<sup>st</sup>.

i Mansion. In the Coptic Pikutorion: in the Arabic Al Sheratân<sup>e</sup> or Al Sheratein, and sometimes Xartân<sup>f</sup>, which is pronounced Shartân notwithstanding. Kircher translates the Coptic by Piscis Hori. The Coptic term is evidently compounded of the article Pi, Kḥros, and Ὡρος. And this would be very inexplicable, (considering that the mansion, B. C. 848, was laid down in 1° 2' 14"), were it not that the two first stars of the constellation Aries, both which entered this mansion, were standing at that very time in the sign of Pisces, seven degrees to the west of that of Aries. The Arabic name is explained by Hyde<sup>g</sup>, to mean *Signum, Indicium*. We have seen it rendered also by "*Fixed mark*<sup>h</sup>," that is, *epoch*, στή-μῖγμα: a very proper designation for the initial term of such a succession as this of the mansions, and just as applicable to any one type of such a succession as to another.

The first stars of Aries in Ulugh Beigh's catalogue are this "Al Sheratân<sup>i</sup>."

1 *Star of Aries, γ Arietis, Bayeri.*

A. D.	Long.	<sup>s.</sup>	<sup>o</sup>	<sup>'</sup>	<sup>"</sup>	Lat.	<sup>o</sup>	<sup>'</sup>	N.
1437		0	26	13	0	6	36		
			5	4	19				
1802	—	1	1	17	19				

<sup>e</sup> Hyde, In Ulugh Beighi Tabulas Commentarii, p. 7. 39.

<sup>f</sup> As in Alfergan, xx. 77. Cf. Beck's Ephemerides Persarum, lib. ii. cap. v. 22-25, for an account of the Arabic mansions also: and Delambre, Astronomie Ancienne, i. 500-507, for the

Arabic scheme compared with the Hindu.

<sup>g</sup> Page 39.

<sup>h</sup> Bentley's Hindu Astronomy, Appendix, Part ii. p. 238.

<sup>i</sup> Hyde, Tabulæ, p. 58: Syntagma, p. 7. 39.

2 Star of Aries,  $\beta$  Arietis, Bayeri.

A. D.		S.	°	'	"	Lat.	°	'	"
1437	Long.	0	27	7	0	7	51	N.	
			5	4	19				
1802	—	1	2	11	19				
1802	Long. of Mans. xxviii Type iv } — i — i }					18. 7° 52' 47". 971.			

This primary mansion then in the Arabian scheme, though graduated even from the most westernly of these two stars, must include the first degree of our first mansion = xxviii of type iv; and much more than that. The Julian date of this mansion, that is of the ingress of the sun into this mansion, by mean motion, B. C. 848, was April 1; the day after the mean vernal equinox, March 31. Considered as a fixed Julian term of that kind, after B. C. 672 it was March 31.

ii Mansion. Coptic, Kolion. Arabic, Al Botein<sup>k</sup>. In Al-fergan, Al Batyn<sup>l</sup>. Kircher has rendered the Coptic by Connectens: as if it was derivable from κάλως, a rope, in Greek. These stars however were the true Xartân of the original type of the mansions, B. C. 1847. The meaning of the Arabic name, Al Botein, it is agreed, is *ventriculus*, a *little belly*: and as they really stood not under the belly of the Ram, but on the tail, (ὄρροπύγιον,) and at the end of the tail, this too would be something extraordinary; were it not very conceivable that this part of the Ram might have been termed τὸ κῶλον, or κώλιον; which the Arabians might mistake for κοιλία, and so render it, in their own language, by *Al Botein*, the little belly.

In Ulugh Beigh, these stars are 7—11 of Aries. We will take the last on the tail, the 10th in his list:

10 Arietis, 2  $\tau$  Arietis.

A. D.		S.	°	'	"	Lat.	°	'	"
1437	Long.	1	16	31	0	1	39	N.	
			5	4	19				
1802	Long.	1	21	35	19				
1802	Long. of Mans. i Type iv } — ii — i }					18. 20° 44' 13". 686.			

<sup>k</sup> Hyde, Comm. 7. 39. Tabulæ, p. 60.

<sup>l</sup> xx. 77.



This coincidence, in our opinion, alone is sufficient to establish the identity of the Arabian scheme of the mansions, and of the Egyptian one of type iii, B. C. 848. We have seen too<sup>m</sup> that, according to Ulugh Beigh, this mansion and this star were rising along with the sun, for the meridian of Samarcand, April 27 A. D. 1419; and that, as we shewed on the same occasion, would be the case, if the sun was in conjunction with both on April 8 at mean noon, for the meridian of Heliopolis in Egypt, B. C. 1847.

iii Mansion. Coptic, Orias. Arabic, Al Thuraiyân<sup>n</sup>, and in Alfergan<sup>o</sup>, *Tureija* and *Negma*. Hyde derives the Arabic name from *Thérwa*, *multus*, *copiosus*, *abundans*; and calls Kircher's derivation of it from *Thaur*, or *Tzuor*, the Arabic name for a Bull, a "silly one." But it does not appear to us to deserve such a character. We consider it as likely to be the true explanation of the Arabic name of the mansion, as Hyde's, or even more so; and any one who is merely aware of the traditionary opinions of the East, relating to the Bull in the heavens, will probably think so too. The Coptic name is translated by Kircher, *Statio Hori*: and that name might be given to this third mansion, not merely for the reason assigned by Kircher, after Plutarch, that Horus was the type of fecundity, but because he was an impersonation of the sun, which had more to do with the sign of Taurus in the sphere of Mazzaroth, than with any other<sup>p</sup>. The second mansion of our first type = to the third in our third, of B. C. 848, was actually falling, B. C. 847, in 26° 45' 55''·255; i. e. very near the beginning of the Tauron of Mazzaroth, Os. 23°.

The stars of this mansion in Ulugh Beigh are 29–32 of Taurus, that is, the Pleiades. The longitude of all these is nearly the same; we will take the most easterly<sup>q</sup>:

<sup>m</sup> Supra, ch. v. sect. vi. p. 339.

<sup>n</sup> Hyde, 7. 40.

<sup>o</sup> xx. 77.

<sup>p</sup> See Supra, ch. vi. sect. iv. p. 368. In the sphere, attributed to Empedocles, (falsely indeed, for there can be no reasonable doubt on that point,) the name of the sign of Taurus, it is said, anciently was *Oûpos*: and this might pos-

sibly be only a confusion made by the author of that sphere of *Ὠρος* with *Οὔρος*:

... .. ὃς πάλαι ποτὲ  
ἐκλήζετ' οὐχὶ Ταῦρος ἀλλ' Οὔρος βροτοῖς,  
ὅσπερ καλεῖται πᾶσι τερμόνων φύλαξ.  
Fabricius, Bibliotheca Græca, lib. ii.  
c. xii. tom. i. p. 484.

<sup>q</sup> Hyde, p. 64. 66.

		32 Tauri, o Tauri.						
A. D.		S.						
1437	Long.	1	22	58	0		Lat.	4 9 N.
				5	4	19		
1802	—	1	28	2	19			
1802	Long. of Mans.	ii	Type i		} 2s. 3° 35' 39". 400.			
	—	iii	— iii					

These stars then, that is, the constellation of Pleiades, could never have fallen within the limits of the second mansion, in the original Egyptian scheme of type i. They must have been comprehended in the first. Nor in fact is it consistent to make Al Botein, in longitude  $51^{\circ} 35'$ , the representative of the preceding mansion, and yet the Pleiades, in longitude  $57^{\circ} 5'$ , (the longitude of 29 Tauri, in Ulugh Beigh,  $\phi$  Tauri of Bayer, A. D. 1802,) representatives of the next to it. That longitude is true for A. D. 1802. It is the longitude of Lucida Pleiadum, ( $\eta$  Pleiadum,) at that time, according to the best maps of the heavens.

iv Mansion. Coptic, Piorion. Arabic, Al Debarân. The former is explained by Kircher to mean Statio Hori Major: the latter, according to Hyde, in the Arabic means Quicquid pone, posterius, et a tergo est. But in its astronomical sense it properly denotes the constellation Hyades<sup>r</sup>; though astronomers, at present, commonly understand it of *one* star in that cluster, the largest and brightest; in Greek termed *λαμπάδιος*, in the Arabic, *Ain Al Thaur*, *oculus Tauri*, the Bull's eye; and by Alfergan<sup>s</sup> called also *Fenîca*.

We have little doubt, if the Coptic name of this mansion has been rightly explained by Kircher, that it was given to it for the same reason as the preceding; because of the connection of Horus with the sign of the Bull. The mean longitude of this mansion, B. C. 847, in our third type, was  $39^{\circ} 37' 20''.970$ : and if reckoned from the first degree of the constellation Aries, in the sphere of Mazzaroth, 11s.  $23^{\circ}$ , it might be supposed to be the  $16^{\circ}$  or  $17^{\circ}$  of the constellation Taurus: and it might be called the Statio Hori in this instance, just as much as in the former; and the Statio Hori *Major*, as being the principal station in the Bull itself, the middle station of that constellation.

<sup>r</sup> Hyde, Comm. p. 7. 39, 40. Tabulæ, 62.

<sup>s</sup> xx. 77.

The stars of this mansion are 11–16 of Taurus in Ulugh Beigh : who compares the first on the face of the Bull to the Greek Lambda in shape'. Alfergan calls all the rest, distinct from Ain Al Thaur, Calûsæ. Ain Al Thaur, or Al Debarân itself, is the 14th :

14 <i>Tauri</i> , a <i>Tauri</i> .						
A. D.		s.	°	'	"	
1437	Long.	2	2	31	0	Lat. 5 15 S.
			5	4	19	
1802	—	2	7	35	19	
1802	Long. of Mans.	iii	Type i	} 2s. 16° 27' 5" . 114.		
	—	iv	— iii			

The true place of Aldebarân, A. D. 1802, in our scheme consequently was about the middle of mansion ii type i = mansion iii type iv. We are persuaded however that the original representatives of our third mansion type i = the ivth, type iii, were the two stars  $\beta\eta\tau\alpha$  and  $\zeta\eta\tau\alpha$  Tauri ; both which fell within it.

v Mansion. Coptic, Clusos. Arabic, Al Hek'a<sup>u</sup>. The former is rendered by Kircher, *Claustrum* : the latter, by Hyde, *Circulus, vel album quiddam, emicans in superiori parte pectoris, aut in pede aut latere sinistro, equi*. We have seen this Arabic term translated *box* also<sup>w</sup>.

This name, at first sight, must seem a very singular one ; and it would appear to be difficult to conceive how such a name or such an idea could have come to be applied to one of the lunar mansions. In our opinion, the reason is to be sought for in the fact which we have already established of the ivth mansion and the third type<sup>x</sup> ; that the moon was actually in that mansion, at the epoch of the last revision, B. C. 848 ; and consequently that this was the *epochal* mansion ; the proper epoch or point of departure of the whole cycle or succession of mansions, in this last type.

The Coptic term might be derived either from the Latin *cludo* or *claudio*, or from the Greek  $\kappa\lambda\epsilon\acute{\iota}\omega$  : but, in either case, it appears to us to have been intended simply in the sense of *Carcer* in Latin,  $\text{Βαλβίς}$  in Greek ; the point from which the horse or the chariot races of antiquity, in their Ludi Circenses, must be supposed to have set out. And this

<sup>t</sup> Hyde, *Tabulæ*, p. 62.

<sup>u</sup> *Ibid.* 7. p. 59 : cf. 38.

<sup>w</sup> Bentley, *Hindu Astronomy*, App. No. ii. p. 238.

<sup>x</sup> *Supra*, p. 537.

too supplies the most probable explanation of the Arabic name of the mansion, Al Hek'a, if Hyde has interpreted it rightly: for it was usual, in these races of antiquity, to hang such *circuli* or *circelli*, (balls)—from the sides or from the necks of the horses—which served both to stimulate them in the race, and to distinguish them asunder. Such badges as these then, by metonymy and synecdoche, might be put for the starting-post, or barrier, in the race itself. If this explanation is correct, it must do much to confirm the account of the final revision of the mansions, already given by us. It will prove too that the names of the mansions must have been imposed upon them at this time, and by the Egyptians; and that the Arabic names, traced up to their origin, must have been borrowed from the Egyptians, and in such instances as these were merely translations of the Egyptian; in all at least were later than the Egyptian. No such name indeed as Clusos, (derived from the Latin or from the Greek,) could have been given to this mansion by the Egyptians in B. C. 848; but one, equivalent to Claustrum in their own language, might have been given to it even then.

As to the stars of this mansion in the Arabian scheme, it seems to be agreed that they are *three* or *four*, belonging to none of the signs or zodia, but to the constellation Orion; situated over the head of Orion, and so disposed as to resemble the points about the Arabic letter *Theʿ*. They are all three comprehended in 1 of Orion, of Ulugh Beigh—which he designates *nebulosa*.

1 Orionis, λ Orionis.

A. D.			E.	°	'	''	°	'	
1437	..	Long.	2	16	31	0	Lat.	13	30 S.
				5	4	19			
1802	..	—	2	21	35	19			
1802	Long. of Mansion iv	Type i	} 2 s. 29° 18' 30".828						
	— v	— iii							

So that none of these stars could have entered our ivth mansion of type i, the vth of type iii. But it is impossible to suppose that these stars, which are almost invisible to the naked eye, and by Ulugh Beigh himself are designated as *nebulous*, besides being extra-zodiacal, could ever have been pitched upon to characterise one of the mansions at first;



especially in preference to any of the bright stars which are still to be seen in this part of the zodiac, between the constellation Taurus and that of Gemini, and within the limits of our fifth mansion itself.

vi Mansion. Coptic, Klaria. Arabic, Al Hen'a<sup>z</sup>. Kircher has left this Coptic name unexplained: Hyde renders the Arabic, after the author of the *Camus*, (*Ocean*, meaning an encyclopædia or universal dictionary, see D'Herbelot *in voce*,) quoted by him<sup>a</sup>, Quævis res, quæ aliam immediate sequitur, vel alteri superstruitur: and as such it would merely denote the next in a certain order; the mansion after the last described, considered as the epoch of all, the Βαλβίς, ἀφετήριον, Carcer or repagulum, of the whole decursus of mansions.

The stars of this mansion are 17, 18 of Gemini in Ulugh Beigh: both, according to him<sup>b</sup>, in the feet of Gemini; according to others, in the *scapulæ*, or shoulder blades<sup>c</sup>.

18 Geminorum, ξ Geminorum.

A. D.	Long.	S. °	3	3	31	ó	Lat. °	10	12	N.
1837	..									
				5	4	19				
1802	..	—	3	8	35	19				
1802	Long. of Mansion v	Type i	} 3 s. 12° 9' 56".543							
	— vi	— iii								

If these stars were really situated *in scapulis Geminorum*, or any where in the upper part of that zodiac, they would be near the beginning of our vth mansion, A. D. 1802; as any one may see from 1–7 in Ulugh Beigh's list itself<sup>d</sup>.

With regard to the Coptic name of the mansion, *Klaria*, we must suppose that Kircher did not know how to understand it; and therefore purposely left it untranslated. It is plainly *Klaria* in the Coptic character. We consider it to be the Greek Κλάρια, or the Latin Claria; the name of an *agon solis*, so called from Apollo of Κλάρος, the Apollo Κλάριος of the Greeks or Romans. We may have occasion to illustrate these games in connection with the Syrian calendar. We will observe at present that they were insti-

<sup>z</sup> Hyde, 7. 44: cf. 59. 69.

<sup>a</sup> 45. (Firuzabadus, according to D'Herbelot.)

<sup>b</sup> Tabulæ, p. 70. So also Alfergan,

<sup>xx</sup>. 77.

<sup>c</sup> Kircher, p. 563: cf. Hyde, Comm. 7.

<sup>d</sup> Hyde, Tabulæ, p. 68.

tuted in the time of Aurelian; and, as we believe, by that emperor himself: and the stated date in the Roman calendar, to which we also believe that they were attached, was June 4.

Now this is the Julian date of the vith mansion of type iii after B. C. 672, answering to June 5 B. C. 848. We think this coincidence confirms our construction of the name of the mansion, and that it was really taken from the Agon Claria. The date of the mansion authenticates that of the Claria; the date of the Claria (otherwise recoverable) interprets and ascertains the name of the mansion. If this name however appeared unintelligible to Kircher, it might very well do so to the Arabians; and we may now perceive the reason why, in default of a better name, and one more in accordance with the Coptic, they chose to render it simply by *Al-Hen'a*, (τὴν ἐχομένην,) i. e. *The next*, to *Al-Hek'a*: a version which clearly enough implies that, though they knew nothing of the name of the mansion in the Egyptian scheme, they were well aware of its place and order.

vii Mansion. Coptic Pi-mahi: Arabic Al Dirâ<sup>e</sup>. The former is rendered by Cubitus; the latter by Cubit also, but in the sense of elbow, arm, or ulna. Al Dirâ in the Arabic is explained to mean properly Dirâ al Asad, Cubitus seu Brachium Leonis<sup>f</sup>; either as the Brachium expansum, Dirâ al Mabsûta, or as the Brachium contractum, Dirâ al Mekbûda<sup>f</sup>. In specifying the stars of this mansion, the Arabians differ: some placing them in Leo, others on the heads of the Gemini<sup>f</sup>. We do not find Al Dirâ, under that name, in the list of Ulugh Beigh. But if the stars of this mansion were really in the heads of the Gemini<sup>g</sup>, (Castor and Pollux,) they would be 1, 2, Gemellorum in his catalogue. We will take the second, (Pollux.)

2 Geminorum, β Geminorum.					
A. D.	Long.	<sup>h.</sup> 3	<sup>m.</sup> 15	<sup>s.</sup> 55	Lat. 6° 30' N.
1437				0	
			5	4	19
1802		3	20	59	19
1802	Longitude of Mansion vi	Type i	} 38. 25° 1' 22.257"		
	— vii —	iii			

<sup>e</sup> Hyde, 8. 44. 69.

<sup>f</sup> Ibid. 44. 69.

<sup>g</sup> Tabulae, p. 68: cf. Alfegan, xx. 77.

Al Dirâ, the Arabic name of this mansion, is probably only a literal version of the original Coptic or Egyptian name for it, understood in the sense of the *cubit* or *fore-arm*: for cubit, the term for the measure of length so called in English, is derived from cubitus in Latin; and cubitus in Latin, like  $\pi\acute{\eta}\chi\upsilon\varsigma$  in Greek, is properly to be understood of part of the human arm, ( $\beta\rho\alpha\chi\iota\omega\nu$ ,) viz. from the elbow to the end of the middle finger. Nor can there be any doubt that the stars of this mansion originally must have made part of the constellation Gemini, or of that of Cancer. None of them could have belonged to the constellation Leo: so that it must always have been a mistake to understand Al Dirâ either of the Brachium expansum or of the Brachium contractum Leonis: a mistake however easy to be occasioned by the ambiguity of the word cubit itself, (answering to Dirâ,) which meant both the measure of length so called, and a part of the human arm, or of that of any animal resembling the human.

As to the Coptic name of this mansion, it appears from Kircher<sup>h</sup> that, expressed in full, it was  $\Pi\iota\mu\acute{\alpha}\nu\tau\epsilon\kappa\epsilon\omega\nu$ , i. e. Pi-mahinte-keon: *Cubitus Nili*; Geon being only the Coptic name of the Nile. It is self-evident that such a name never could have been given to this mansion by any but the Egyptians: and consequently that none is more important than this to point out and to attest and authenticate the Egyptian origin of the mansions, and of their peculiar appellations.

If the ecliptic is divided into 28 equal parts, of which the first coincides with  $0^{\circ} 0' 0''$ , i. e. the vernal equinox; the eighth must coincide with  $90^{\circ} 0' 0''$ , i. e. the summer solstice. The rise of the Nile in Egypt, as we shewed elsewhere<sup>i</sup>, from time immemorial was observed to begin at or about the summer solstice; and the gradual addition made to its waters, from the beginning of the rise until it attained to its maximum, from time immemorial also having always been measured in cubits; nothing could be more probable *a priori* than that, in such a division of the ecliptic among the lunar mansions in Egypt as one which began critically at the vernal equinox, the name of the cubit mansion would

<sup>h</sup> P. 563. Cf. Hyde, 8.

<sup>i</sup> Diss. xiv. ch. i. sect. iii. supra, p. 6.

be given to that which coincided with the summer solstice, and with the beginning of the inundation; the mansion *in* which the Nile began to rise every year, and *in* which it was usual every year to begin to apply to the increment of the inundation its stated and regular measure, the Egyptian cubit. And this mansion, from the nature of the case, would either be the seventh, which terminated at the summer solstice, or the eighth, which began at it. It can scarcely be doubted indeed that, whether any of the mansions in the first delineation of them all had a name of its own or not; one of these two would have one; and that name would be the cubit mansion. In the original scheme of the mansions, when the mean vernal equinox was falling on April 8, the length of the spring quarter, in the calendar of Mazzaroth, being assumed at 92 days, the mean summer solstice would be reckoned to fall on July 9: and July 9, as our first type of the mansions shews, was the Julian date of the viiith mansion in that type. If we reckon on 92 days from the first term in the calendar of Mazzaroth, March 24, the summer solstitial date falls on June 24: and the day after that, June 25, as our first type of the mansions also shews, was the stated Julian date of the seventh mansion in that type. We are entirely of opinion that the name of the cubit mansion, in the first instance of all, was given to this; i. e. to the viiith mansion in the original scheme of mansions, the Julian limits of which, as there defined, were June 25 and July 9.

It confirms this opinion that B. C. 848, at the final revision of the mansions when every mansion was set back 13 days, this viiith mansion in the original type, the proper Julian date of which at that time was July 1, would be set back to June 18: which date, after B. C. 672, would become the same thing as June 17. But it would still be the date of the seventh mansion; and as the seventh mansion it would still continue to retain its name of the cubit mansion, and its stated traditionary association with the annual phenomenon of the rise of the Nile. It is very conceivable therefore that in the course of time the stated date of this mansion, June 17, might come to be considered the stated date of the rise of the Nile also. The rise of the Nile, B. C. 848, and every year for a long time after, would actually



take place in this mansion; especially if it rather preceded the solstice than followed it: and this coincidence, together with the name of the mansion itself, would be sufficient to account even for such a tradition and such a belief among the Egyptians, from this time forward, as that the Nile always began to rise in this mansion, and even always on the first day of this mansion.

Now we learn from the testimony of Prosper Alpinus that there was a tradition among the Egyptians, and a popular belief conformable to it, transmitted from the remotest antiquity, yet still currently retained in his own time, (A. D. 1580—83) that the Nile did always begin to rise on June 17; and so critically on that day, that it was never known to anticipate it, or to be later than it. And yet in Prosper Alpinus' time, (contemporaneously with the Gregorian correction of the calendar) June 17 was six or seven days later than the summer solstice; and consequently so much later than the actual beginning of the inundation, if that was never later than the summer solstice.

The testimony of Prosper is too important to the present question of the proper date of the viith mansion at the last revision, not to be produced in terms.

i. De Medicina Ægyptiorum<sup>k</sup>: Nilus vero, ut ad ipsum nunc redeam, terram Ægypti arenosam ac omnino sterilem limo pinguiissimo aquæ larga inundatione obtegit fœcundissimamque ac cultui aptissimam reddit...Caÿri vero, ut hujusce fluminis augmentum nunc dicam, *singulis annis constantissime*, (cujus veram causam me ignorare fateor,) *mense Junio die decima septima*, oriente sole flumen illud augeri incipit; et nunquam observatum est ejusdem augmenti principium *ab ea die et hora consueta* deflexisse: quod certe magnum naturæ arcanum omnibus videtur. mox magis et magis peraugmentum singulis aliquando diebus ad octo vel decem vel ad pauciorum digitorum altitudinem crescit: ad summam quatuor et viginti cubitis.

ii. Ibid.<sup>l</sup>: Pluviæ itaque augmenti fluminis hujus causæ creduntur. quod etsi verissimum esse arbitror, tamen duo de flumine isto tibi nunc dicenda esse judico, quorum causas

<sup>j</sup> Res Ægypti, lib. i. cap. i ad fin.:  
cap. ii. p. 9: cf. Præfatio.

<sup>k</sup> Lib. i. cap. viii.  
<sup>l</sup> Ib. p. 13 obv.

naturalibus principiis posse cognosci nullo modo fieri posse arbitror. primumque est flumen illud in Ægypto *constantissime perpetuo tempore singulis annis mense Junio dieque decima septima incipere augeri*. secundum est, observatio futuri hujusce incrementi; qua ad quotos cubitus flumen sit perventurum prænoscent, nunquamque a suo judicio aberrant, neque falluntur, . . . Nilum *incipere augeri perpetuo tempore mense Junio dieque decima septima omnibus ibi habitantibus* notissimum est, sed qua causa id fiat ego prorsus ignoro. *mense itaque Junio ante solis ad tropicum accessum multis diebus* Ægyptii terram illiusce fluminis toto integro anno adservatam et siccata arefactamque accipiunt, quam lance expendunt, faciuntque ut ponderum numerus addentes et subtrahentes dragmis sedulo respondeat; ut exempli gratia terra sit trium dragmatum pondere; quam in loco sicco undique concluso reponunt, et conservant, quotidieque librantes ipsam observant nihil auctam nihilque imminutam pondere esse usque ad *diem decimam septimam mensis Junii*, in qua die auctam ipso pondere inveniunt; ex cujus pondere multum vel parum aucto multum vel parum flumen illud auctum iri prænoscent, a diligentique peraukti illiusce ponderis notitia quotis etiam cubitibus ipsum sit augendum certo præsciunt.

iii. Ibid.<sup>m</sup>: A Nili fluminis facto augmento aërem in hunc statum mutari posse aliquibus forsitan videbitur, quod eodem tempore, scilicet sole solstitium tenente, (*cum annis singulis flumen crescere incipiat die decima septima mensis Junii*), constantissime observetur hunc aëris salubrem statum vagari.

iv. Res Ægypti<sup>n</sup>: Accedit etiam ad augendam eam aëris benignam salubremque constitutionem Nili fluminis augmentum; quod (*decima*) *septima die mensis Junii incipit*, atque ad finem fere mensis Septembris perseverat.

v. Ibid.<sup>o</sup>: Antiqua in Ægypto consuetudo est, ut dum Nilus crescit summa lætitia tota Ægyptus adficiatur; et quod maxime naturæ sapientes admirantur, ex terræ Ægyptiæ glebæ pondere, etiam ubilibet sumpta fuerit, quam nunquam Nilus madefecerit, annonæ caritatem copianve prævideant. de qua sane observatione nos alias abunde scripsimus in primo libro de Medicina Ægyptiorum. *principium istiusce*

*fluminis incrementi semper ab antiquitate usque ad hanc ætatem incipere die xvii Junii, (non observata hic anni Gregor-  
iani correctione,) consuevisse narrant : nunquam ante et nun-  
quam postea a quopiam hoc principium fuisse observatum.*

It must be confessed that we meet with no statement to the same effect as the above in any author, ancient or modern, besides ; at least in so many words : and were we required to say whether we ourselves believed the fact to be as these representations would imply it to be, we should hesitate to answer in the affirmative. But we cannot hesitate to believe that Prosper Alpinus was convinced of the truth of his own representations ; and that he spoke the truth when he declared that such was the account of the fact which he had heard in Egypt : that he is to be believed when he assures us that this was the common persuasion concerning it in Egypt, when he was there ; and, as we are bound to add, that for any thing which he himself had observed to the contrary, during his three years' residence on the spot, the state of the case itself was agreeable to this representation and to this belief ; and that the Nile must actually have begun to rise on or about June 17, every year.

The question however with which we are concerned at present is not, What was the real truth of the fact, but what was the popular belief concerning it ? what was the common opinion ? and whether truly or not, whether with or without foundation, did popular tradition and popular belief *de facto* connect the beginning of the rise of the Nile every year with this one day, June 17 ? On this point Prosper Alpinus, a man of learning, a physician, and a natural philosopher, a man of probity too, who would not deliberately and knowingly mistake the truth, and in this instance could have had no conceivable motive for doing so, must be considered a competent witness.

The fact of the tradition however and of the popular belief of its truth being admitted on the strength of his testimony, there is no rational explanation of either, (especially if the tradition and the persuasion connected with it were, after all, inconsistent with the actual phenomena of the inundation itself,) except that which we have pointed out ; viz. That

this day, June 17, at the last revision which the mansions appear to have ever experienced in Egypt, was left attached to the cubit mansion; the true date of the inundation at that time, and the traditionary or reputed date ever after. It is true that this is a Julian term : but that is no objection. The Egyptians did not want the means of perpetuating a given Julian term in their own calendar, from B. C. 848 or 672, down to the date of the Alexandrine correction. It was easy to do it in the calendar of Mazzaroth itself; in which June 17 after B. C. 672 was the 26th of Didymon. And after the Alexandrine correction it was easy to perpetuate either that or any other Julian term; just as much as in the Julian calendar itself. Both in the ancient Alexandrine and in the modern Coptic calendar, the proper and perpetual representative of this Julian term, June 17, and in every year of the cycle of leap-year alike, was one and the same, Paüni 23.

With regard to the other curious piece of information concerning the preliminary testing of the weight of a portion of dry earth, from which to form an opinion beforehand of the future magnitude of the inundation; though this fact too, as far as we know to the contrary, rests on the single authority of Prosper Alpinus, yet, in our opinion, it was an experiment which may very probably be supposed to have been transmitted from the ancient Egyptians. It is at least a physical fact that, from the moment when fresh water begins to be first intermixed with the stagnant water of the Nile, and before the commencement of the inundation has yet been rendered perceptible in any other way; an exhalation begins to rise from the surface of the river, an insensible evaporation, which substances capable of attracting humidity from the atmosphere might possibly be the means of indicating by an addition to their weight.

Prosper tells us this test began to be applied *several days* before the solstice as well as before the inundation, yet still in the month of June; that is, some days at least before June 11 or 12, the solstitial date in his time: and this must render it exceedingly probable that it actually began to be applied on the stated date of the mansion next before the cubit mansion, that is, of the vith in the type of B. C. 848;



(the proper Julian date of which, after B. C. 672, was June 4;) and continued to be applied all through that mansion, from June 4 to June 17 itself.

And although, as we have already observed, this statement respecting the regular commencement of the inundation on one particular day, which has turned out, on inquiry, to be the stated Julian date of the viith or cubit mansion, (one of the lunar mansions,) appears in so many words in no other author, ancient or modern, but Prosper Alpinus; it is still the case that statements do occur in the works of the ancients which connect the stated rise of the Nile with the moon; and statements which would be singular and unaccountable, taken by themselves, but are explained, if they are understood with a particular reference to some such tradition as this relating to the cubit mansion. Οἶονται δὲ καὶ πρὸς τὰ φῶτα τῆς σελήνης ἔχειν τινὰ λόγον τοῦ Νείλου τὰς ἀναβάσεις<sup>p</sup>—Incipit crescere (Nilus) luna nova quæcunque post solstitium est<sup>q</sup>—Nilus ibi coloni vice fungens evagari incipit ut diximus solstitio et nova luna<sup>r</sup>—Nonnulli adfirmant fontem ejus qui Phialus vocatur siderum motibus excitari....non tamen sine certa legis disciplina, hoc est lunis cœptantibus<sup>s</sup>. The rise of the Nile, in point of fact, neither has at present nor ever had any thing the least to do with the age of the moon. How then could it be said to begin to rise every year, at the first new moon at or after the solstice? Most probably because of the fact which we have just been explaining; that it did begin to rise, B. C. 848, and from that time forward, in the viith lunar mansion; and at the end of that mansion, just where it confined on the solstice. The date of the solstice, B. C. 848, in the sphere of Mazzaroth, was July 1; the day after the last of the viith mansion, and the first day of the viiith mansion. The lunar mansions were not a lunar calendar, it is true; but they were nominally a lunar reckoning of a certain kind: and at the epoch of the last revision, B. C. 848, they became connected with a proper lunar reckoning, (that of the Apis calendar,) through the common term of April 1. In this calendar too, B. C. 848, July 1, the stated

<sup>p</sup> Plutarch, De Iside et Osiride, xliii.    <sup>q</sup> Pliny, H. N. v. 10.    <sup>r</sup> xviii. 47.

<sup>s</sup> Solinus, Polyhistor, xxxii. § 11.

date of the solstice was very nearly the date of the fourth new moon; which fell on June 29.

viii Mansion. Coptic, Termelia. Arabic, Al Néthra. Nethra is rendered by Mr. Bentley<sup>t</sup> a watchman or guard. We find no explanation of the term in Hyde's Syntagma<sup>u</sup>: only he seems to have considered it the same as the Arabic Ma'laph; the name given by the Arabians to the same star which in Greek was called *φάρνη*, in Latin *præsepe*, (the crib or manger; one of the stars of Cancer,) meaning the same in the Arabic too, as either of those words in the Greek or the Latin. In Ulugh Beigh it is the first of Cancer<sup>v</sup>.

i *Cancrī*, ε *Cancrī*.

1437	..	Long.	3 <sup>h</sup> 29 <sup>m</sup> 46 <sup>s</sup> 0 <sup>''</sup>	Lat.	1 <sup>o</sup> 0 <sup>'</sup> N.
			5 4 19		
1802	..	—	4 4 50		
1802	Long. of Mansion vii	Type i	} 4 s. 7° 52' 47''·971		
	— viii	— iii			

The Coptic name is rendered by Kircher "Statio descensus, seu influentiæ." And this explains itself, especially as the name of the mansion next to the cubit mansion, in which the inundation began. The first perceptible rise of the Nile would take place in this viiith mansion; and more and more so every day: so that no appellation could be more appropriate for it than that of the mansion of influx; the mansion of flowing in; of the watery influence, as setting in with a more and more copious stream every day.

ix Mansion. Coptic, Piautos. Arabic, Al Terpha<sup>w</sup>. Terpha, says Hyde, is the Arabic for "eye:" and the stars of this mansion are described as the two over the eye of Leo<sup>w</sup>. Yet they do not appear, in Ulugh Beigh, under the name of *Al Terpha*. They appear however to be 3 and 4 of his list, one of which he styles Râs al Asad al Shemâli, and the other Râs al Asad al Gjenûbi<sup>x</sup>; the former ε Leonis Bayeri, the latter μ Leonis. We will take the 4th—the more southernly of the two.

<sup>t</sup> Hindu Astronomy, App. No. ii.  
p. 238.

<sup>u</sup> Comm. p. 8-45.

<sup>v</sup> Tabulæ, p. 72.

<sup>w</sup> Hyde, p. 8: cf. Alfergan, xx. 78.

<sup>x</sup> Tabulæ, p. 74.

4 *Leonis*,  $\mu$  *Leonis*.

A. D.	Long.	S.	°	'	"	Lat.	°	'	N.
1437 ..		4	13	7	0	9	45		
			5	4	19				
1802 ..	—	4	18	11	19				
1802	Long. of Mansion viii	Type i	} 4 s. 20° 44' 13".686						
	—	ix — iii							

So that there was but little difference between the longitude of the star in question and that of this mansion, A. D. 1802. There can be no doubt however that the original stars of the mansions in general must have been repeatedly changed by the Arabians; and in none of the constellations more than in this of Leo.

The Coptic name in this instance is rendered by Kircher *Seipsam parturiens*. Its Julian terms would be July 14–27, after B. C. 672. The inundation at this time would be going on most rapidly and most copiously; and if Kircher has interpreted the literal meaning of the name aright, we should be altogether of opinion that it was given to this mansion to express the belief of the Egyptians which we had occasion to advert to before<sup>x</sup>, that the waters of the Nile were self-produced. It is very observable that the name, according to Kircher, is *se ipsam* not *se ipsum* parturiens; as if the subject of this parturition were the land of Egypt, in the form of the watery exhalation thus emanating from itself.

x Mansion. Coptic, Ditehni: Arabic, Al Gjeb'hav. The meaning of both these terms is *frons*, or *forehead*. The stars of this mansion in Ulugh Beigh are 5, 6, 7 *Leonis*, (properly called Al Gjeb'ha) and 8 *Leonis*, in Arabic, Méliki, i. e. Regia: Βασιλίσκος, Regulus, or Cor *Leonis*: in Arabic, Kalb al Asad. We will take the longitude of this in particular<sup>z</sup>.

8 *Leonis*,  $\alpha$  *Leonis*, *Bayeri*.

A. D.	Long.	S.	°	'	"	Lat.	°	'	N.
1437 ..		4	22	13	0	0	9		
			5	4	19				
1802 ..	—	4	27	17	19				
1802	Long. of Mansion ix	Type i	} 5 s. 3° 35' 39".400						
	—	x — iii							

<sup>x</sup> Diss. xiv. ch. i. sect. viii. p. 22 note.<sup>y</sup> Hyde, *Tabulæ*, 74: Comm. 8–46: cf. Alfergan, xx. 78.<sup>z</sup> *Tabulæ*, 74.

The proper seat of Cor Leonis in the original type of the mansions, continued to A. D. 1802, was no doubt the middle of the viiith.

xi Mansion. Coptic, Pi-Chorion : Arabic, Al Zub'ra<sup>a</sup>. The Arabic phrase, Min al Zub'ra, is explained by Hyde<sup>a</sup> to mean De Crine Dorsi, though the stars of this mansion really stand on the haunches of the lion. Mr. Bentley renders Zub'ra by mane<sup>b</sup>. The stars of this mansion in Ulugh Beigh are 21, 22 Leonis<sup>c</sup>.

22 Leonis,  $\eta$  Leonis.

A. D.	..	Long.	S.	5	5	46	6	Lat.	9	24	N.
1437				5	5	46	6				
				5	4	19					
1802	..	---		5	10	44	19				
1802	Long. of Mansion x	Type i	} 5 s. 16° 27' 5" . 114								
	—	xi —									

The Coptic name is rendered by Kircher  $\upsilon\pi\alpha\rho\chi\acute{\epsilon}\tau\eta\varsigma$ : the proper meaning of which would seem to be that of "beginner." Such a name might be given to an epoch; a point of departure of any kind. And we have seen supra<sup>cc</sup> that, at the date of the first revision, the epochal term must have coincided with the middle of this mansion. The second revision too having been anticipated one year before its time, this mansion would nominally be the epochal mansion still. In short, this xth mansion must have been considered the epoch all through the second period; as the vith would be all through the first, and the vth, Al Hek'a, all through the third. The Arabic appellation of the mansion seems to imply the same thing. According to Phiruzabadius, quoted by Hyde<sup>d</sup>, the mansion, Al Zub'ra, had another name, Al Cheratân, or Chertân: and according to Alfergan<sup>e</sup> also, the stars of the mansion were called Charatanæ. Is this name a different one from that of Sheratân or Xartân, given to the first mansion? for if not, it will imply that in some schemes of the Arabian mansions, borrowed nevertheless from the Egyptian, the reckoning began with the xith mansion: and that

<sup>a</sup> Hyde, Comm. 8. 46, 47: cf. Alfergan, xx. 78.

<sup>b</sup> Hindu Astronomy, App. part ii. p. 238.

<sup>c</sup> Hyde, Tabulæ, 76: Comm. 46, 47. cc P. 531.

<sup>d</sup> 47.

<sup>e</sup> xx. 78.



might perhaps be explained not only by the fact just pointed out, but also by the fact that the Arabic date of this mansion, after B. C. 672, was August 8; i.e. nominally the same as the famous astrological term of the *genitura mundi*, August 8 B. C. 798, of which we have had occasion to say so much.

xii Mansion. Coptic, *Asphulia*: Arabic, *Al Serphaf*.<sup>f</sup> The Arabic name is explained to mean *Mutatrix*, or *Changer*: Sic dicta, ob mutationem æstus et frigoris. Turgjemân, quoted by Hyde<sup>g</sup>, observes, *Nominatur Serpha propter discessum frigoris ipsa oriente et adventum æstus*: which, we might at first sight suppose, would have been more correct had it been *exprest*, *Propter discessum æstus atque accessum frigoris*; since, to speak of a transition from cold to heat in the month of August, for the climate of Egypt or of Arabia, would seem to be absurd; though not so, of one from heat to cold. And yet it is observable that Aben Ragel also, in Kircher<sup>h</sup>, explains the name of the mansion in the same manner. This name therefore is so far unaccountable, and might have suited a mansion in February better than one in August. The Julian date of the mansion was August 21 in the Arabian scheme: 52 days after the solstice, July 1: by which time the heat of the weather, even in Egypt and in Arabia, must have begun to be more or less sensibly diminished. It would correspond very nearly to the end of the *δρόρα* and to the beginning of the *φθινόπωρον* in the *Parapegmata* of the Greeks. The Arabic name however is probably to be explained by the physical fact of the cessation of the Etesian winds in this mansion. The Etesian winds were winds from the north, and cool; and their cessation was followed by winds from the south, which in Egypt and Arabia were always hot and sultry winds. This would therefore be a kind of transition from cold to hot, even in the middle of summer. Now the Etesian winds, according to Ptolemy, began to blow in Egypt, July 23, and ceased to blow September 1; that is, they ceased in this mansion, which extended to September 2 or 3.

Serpha is 27 Leonis in Ulugh Beigh<sup>i</sup>: *Danab al Asad*, the tail of the Lion, or standing on the extremity of the tail.

<sup>f</sup> Hyde, Comm. 8. 47: Alfergan, xx. 78. § 47.

<sup>h</sup> P. 564.

<sup>i</sup> Hyde, Comm. 47: *Tabulæ*, 78.

27 Leonis,  $\beta$  Leonis.

A. D.	..	Long.	S. °	Lat. ° N.
1437	..	5 13 49	0	12 0
		5 4 19		
1802	..	— 5 18 53	19	
1802	Long. of Mansion xi	Type i	} 5 s. 29° 18' 30".828	
	— xii	— iii		

The Coptic name of the mansion however did not denote change of any kind. Kircher renders it *Statio amoris*. The Julian date being August 22; this is only one day earlier than the stated date of Parthenon, in the sphere of Mazza-roth, after B. C. 672, August 23. At this time the waters of the Nile having attained to their maximum, and the country being entirely covered with them, we conjecture that as the name of The Virgin was given to the sixth sign because of that coincidence, so the appellation of the Station or mansion of Love might be given to this mansion for the same reason too. In this mansion, (the first in the sign of Virgo,) the mystical nuptials of Osiris and Isis might be supposed to begin; because of the active deposit of alluvial matter, the future receptacle of the seeds of every kind, all over the surface of the land of Egypt, by the waters of the Nile, which was going on therein also. And hence, possibly, its name; in conformity to the same idea, as the mansion of Love.

xiii Mansion. Coptic, Abukia: Arabic, Al-Auwâ<sup>k</sup>. Both these names are explained to mean Latrator, or Barker. This mansion, in Ulugh Beigh<sup>l</sup>, would appear to have taken in 5–10 of Virgo<sup>m</sup>; though it is more commonly described as characterised by *five* stars only, so disposed as to resemble the Greek Alpha or Lambda; four of them, ( $\eta$ .  $\gamma$ .  $k$ .  $\theta$ . of Bayer,) according to Alfergan<sup>n</sup>, being in one row. We will take 9 Virginis, the most to the east of these five.

9 Virginis.  $\theta$  Virginis Bayeri.

A. D.	..	Long.	S. °	Lat. ° N.
1437	..	6 10 25	0	1 36
		5 4 19		
1802	..	— 6 15 29	19	
1802	Long. of Mansion xii	Type i	} 6 s. 12° 9' 56".543	
	— xiii	— iii		

<sup>k</sup> Hyde, Comm. 8. Alfergan, xx. 78.<sup>m</sup> Tabulæ, 80.<sup>l</sup> Hyde, 48.<sup>n</sup> Comm. 50. cf. 49.

The longitude of the fourth of the number, 8 Virginis of Ulugh Beigh,  $\kappa$  Virginis of Bayer, reduced to A. D. 1802, is 6 s.  $11^{\circ} 26' 19''$ : i. e. very nearly that of our xiith mansion of type i: so that 8 Virginis, and 9, and we may add 10 Virginis, which in Ulugh Beigh is also designated Min al Auwâ, might have been originally assigned to this mansion.

The barking of a dog is imitated in all languages by some such sound as that which we employ in English for the same purpose; bow-wow, wow-wow. And this is evidently intended by the Arabic Au-wâ. No one can doubt of that who has read the *Vespæ* of Aristophanes, and remembers that in that play a dog is introduced as one of the dramatis personæ; yet that the only articulate sounds which he is supposed to utter are these, of  $\hat{a}\hat{u}$   $\hat{a}\hat{u}^n$ ; that is, Au-wâ, or wow-wow.

Hyde informs us<sup>nn</sup>, after the Arabian authors, that this singular name was given to the stars of this mansion, because they seemed to be barking at the tail of the Lion: from which however they are far enough removed on the sphere; unless the tail of the Lion was differently laid down formerly from what it is at present\*. We may venture to say that such an idea never could have entered the most inventive imagination, which was not previously familiar with the actual mode of representing the Lion on the Egyptian sphere; viz. standing on the back of an Hydra, (the type of the Nile, which overflowed in Leo,) and both together in a boat; and with a little dog on its tail, raised on its hind legs, and as it were actually barking at the Lion. In this manner is the Lion represented on the zodiacs of Denderah: and in the same way does Macrobius join three figures, those of a Dog, a Lion, and a Dragon respectively, in his description of a statue of Sarapis at Alexandria°.

\* The first of these stars indeed being assumed to be  $\gamma$  Virginis in Ulugh Beigh,  $\beta$  Virginis of Bayer, its longitude, A. D. 1802, reduced from Ulugh Beigh's, is 5 s.  $23^{\circ} 35'$ , its latitude being  $0^{\circ} 10' N$ . It is a star of the third magnitude in Ulugh Beigh. It is so situated as to be in a right line with  $\beta$  Leonis, the star on the end of the tail of the Lion, Danab al Asad; and the idea having once been suggested of regarding it in the light of a dog, it might be imagined it was barking at this star on the tail of the Lion.

<sup>n</sup> *Vespæ*, 903.

<sup>nn</sup> *Comm.* 50.

° *Saturnalia*, i. 20. 310.

Whatsoever may have been the real meaning implied in this mode of representing the Lion on the sphere; we may infer from it that it must have first suggested to the Arabians the idea of regarding the stars of a certain mansion as so many dogs barking at the Lion: and therefore that the Arabic name of this mansion is one among other arguments that both the mansions and their names were originally borrowed by the Arabians from the Egyptians. The same name however, according to Kircher, was given to the mansion in the Coptic: the true explanation of which is probably connected with the meaning of the emblem, resembling a dog, on the tail of the Lion. For our part, we should consider this not so much a dog, as a jackall; and a type of the Egyptian Anoup or Anepo, i. e. Anubis; to whom the monuments give the name of the Hophioue of the sphere, i. e. "seated on the roads" of the sun's path<sup>p</sup>; whose business it was to precede the sun in his passage through the tropics and solstices; i. e. the more important and cardinal points of the year. We shall better be able perhaps to illustrate this subject hereafter. Meanwhile, we observe, that the date of the mansion itself, September 4, is some confirmation of this opinion; as may hereafter appear.

xiv Mansion. Coptic, Choritos: Arabic, Simâk al A'zal<sup>q</sup>. The proper meaning of the Arabian name is "Efferens Inermem<sup>q</sup>; i. e. the Virgin; in contradistinction to Simâk al Râmih, Efferens hastiferum; i. e. Boötes. So Hyde, after the Arabians.

Simâk al A'zal in Ulugh Beigh is 14 Virginis<sup>r</sup>, called also, according to him, Sumbela.

14 Virginis: Spica Virginis, a Virginis.

A. D.	..	Long.	S.	6	16	10	0	Lat.	2	9	S.
1437	..	Long.		6	16	10	0		2	9	S.
					5	4	19				
1832	..	—		6	21	14	19				
1802	Long. of Mansion	xiii	Type	i							
	—	xiv	—	iii							
									6 s. 25'	1' 22".257	

The Coptic name of the mansion in Kircher is translated *Statio Altitudinis*: the reason of which designation will be

<sup>p</sup> Egyptian Antiquities in the British Museum, part i. p. 43.

gan, xx. 78.

<sup>r</sup> Tabulæ, p. 80.

<sup>q</sup> Hyde, Comm. 8: 49, 50. Alfer-



evident as soon as it is known that, B. C. 848, this mansion extended from  $168^{\circ} 10' 48'' \cdot 043$  to  $181^{\circ} 2' 13'' \cdot 757$ ; that is, to the autumnal equinox. It has been already observed that in such a division of the ecliptic, as this of the mansions, every seventh mansion must terminate at one of the cardinal ingresses. The first mansion being on the meridian at a certain time, the fourteenth would be so twelve hours afterwards. If the first degree at least of the 1st mansion was on the meridian April 1, B. C. 848, at noon, with the sun; the last degree of the xivth would be so at midnight April 2: and this is what is properly meant in the technical language of astronomers, by the altitude of a star or of a degree of the ecliptic or of the equator; viz. its culminating and being on the meridian at midnight.

It is evident that the name of Simâk al A'zal, Efferens or Producens, inermem, (the Virgin,) would be much more properly given to the mansion than to the stars in the mansion, or to any one of that number in particular; as Spica Virginis. For it was the mansion that brought out the stars, not the stars which brought out the mansion. It might very well be demanded, in explanation of this name, What it was which produced the Virgin? Spica Virginis? or the mansion? Spica Virginis? which she herself held in her hand; or the mansion? in which she herself was in part contained.

xv Mansion. Coptic, Chambalia: Arabic, Al Gaphr<sup>s</sup>. Hyde explains this Arabic term to mean Ventrem, Velamen, Tecturam; because the stars of this mansion were covered and concealed. They are 22–25 of Virgo in Ulugh Beigh<sup>t</sup>.

25 *Virginis*,  $\lambda$  *Virginis*.

A. D.		Long.	<sup>S.</sup> 6	<sup>°</sup> 29	<sup>'</sup> 7	<sup>''</sup> 0	Lat.	<sup>°</sup> 0	<sup>'</sup> 42	N.
1437	..									
				5	4	19				
1802	..	—		7	4	11	19			
1802	Long. of Mansion xiv	Type i	} 7 s. 7° 52' 47" · 971							
	—	xv								
					iii					

The Coptic name is rendered by Kircher, Propitiatio: Statio Propitiationis: the reason of which we do not profess to understand, unless it is in some manner or other to be explained by the date of the mansion itself, September 30–

<sup>s</sup> Hyde, Comm. 8. 50: cf. Alfergan, xx. 78.

<sup>t</sup> Tabulæ, 82.

October 13, within which the original date of the Isia, October 5–8, would also be included. It is probable that there was a stated ceremony of some kind every year at this time, October 5 or 6.

xvi Mansion. Coptic, Pritithi. Arabic, Al Zubanâ<sup>u</sup>. The meaning of the Arabic name is Chelæ, or claws<sup>w</sup>. The stars of this mansion were consequently the Chelæ of Scorpio, or the scales of Libra. In Ulugh Beigh<sup>x</sup> they are 1, 2, 3 Libræ: Al Kiffa al Gjenûbija and Al Kiffa al Shemâlija.

3 Libræ, β Libræ.

A. D.	..	Long.	<sup>S.</sup> 7 11 58 0	Lat.	<sup>0</sup> 8 45 N.
1437	..		5 4 19		
1802	..	—	7 17 2 19		
1802	Long. of Mansion xv	Type i	} 7 s. 20° 44' 13".686		
	— xvi	— iii			

The Coptic name, Pritithi, is left by Kircher unexplained; and therefore we must leave it so too. It is desirable however that its meaning should be investigated by Coptic scholars: in particular, whether it is the same with the Arabic Al Zubanân, the Chelæ of Scorpio, or the Lances of Libra; for that is important to the question whether Libra itself received its name B. C. 848 or not. We doubt however whether Pritithi is really a Coptic term.

xvii Mansion. Coptic, Stephani. Arabic, Al Iclîl<sup>y</sup>. Both mean Corona, or Crown; Corona Scorpîi. The Coptic is merely the Greek Στέφανος: and the Arabic being Corona also, and nothing more, it must have been derived from the Coptic. The stars of this mansion, in Ulugh Beigh, are 1–6 of Scorpio<sup>z</sup>: Iclîl al Gjeb'ha, Corona Frontis.

5 Scorpîi, ν Scorpîi.

A. D.	..	Long.	<sup>S.</sup> 7 26 28 0	Lat.	<sup>0</sup> 1 45 N.
1437	..		5 4 19		
1802	..	—	8 1 32 19		
1802	Long. of Mansion xvi	Type i	} 8 s. 3° 35' 39".400		
	— xvii	— iii			

xviii Mansion. Coptic, Charthian. Arabic, Al Kalb<sup>a</sup>. Both

<sup>u</sup> Hyde, Comm. 8: Alfergan, xx. 78. xx. 78.

<sup>w</sup> Ibid. 51.

<sup>z</sup> Tabulæ, 86.

<sup>x</sup> Tabulæ, 84.

<sup>a</sup> Hyde, Comm. 9. 52: Alfergan,

<sup>y</sup> Hyde, Comm. 9. 51, 52: Alfergan, xx. 79.

denote Cor (Scorpionis, Kalb al Akrab, or Antares.) The Coptic is from the Greek *Καρδία*. This star is 8 Scorpionis in Ulugh Beigh<sup>b</sup>.

8 *Scorpionis*, α *Scorpii*.

A. D.	..	Long.	<sup>s.</sup> 8 2 16 0	Lat.	4 30 S.
1437	..		5 4 19		
1802	..	—	8 7 20 19		
1802	Long. of Mansion	xvii Type i	} 8 s. 16° 27' 5" .114		
	—	xviii — iii			

xix Mansion. Coptic, Aggia (Hagia?). Arabic, Al Shaula<sup>c</sup>. The Arabic denotes "the tail:" i. e. of the Scorpion. These stars are 20, 21 Scorpii in Ulugh Beigh<sup>c</sup>.

20 *Scorpii*<sup>d</sup>, λ *Scorpii*.

A. D.	..	Long.	<sup>s.</sup> 8 16 31 0	Lat.	13 33 S.
1437	..		5 4 19		
1802	..	—	8 21 35 19		
1802	Long. of Mansion	xviii Type i	} 8 s. 29° 18' 30" .828		
	—	xix — iii			

The Coptic name of this mansion is rendered by Kircher, Sancta, as if it were merely the same with the Greek *αγία*. But he explains it also to mean the Statio translationis Caniculæ in cœlum: and he adds that it was likewise called in the Egyptian *αστροκύων*: i. e. after the name of the Dog-star itself. In our opinion we may probably infer from this peculiar mode of designating it, that it was the mansion in which Sirius exhibited the particular phenomenon of coming to the meridian at midnight. The limits of this mansion, in our scheme, were Nov. 22 and Dec. 5 B. C. 848. Sirius rose heliacally for the meridian of Heliopolis or of Memphis, July 21 B. C. 848. From this day to December 5 the interval would be 137 days. Now in 137 days the anticipation of the stars in mean time, as our tables shew<sup>e</sup>, would amount almost to nine hours.

d.	h.	m.	s.
120	=	7	51 49.131
17	=	1	6 50.460
137	=	8	58 39.591

<sup>b</sup> Tabulæ, 86.

<sup>c</sup> Hyde, Comm. 9. 52: Alfergan, xx. 79.

<sup>e</sup> Introduction, Supplementary Tables.

<sup>d</sup> Tabulæ, 88.

M. Biot has calculated that A. D. 139 Canicula rose heliacally, for the meridian of Memphis, on July 20, at 3 h. 19 m. 18 s. A. M.<sup>f</sup> On this principle, December 4 that year, 137 days later, it would be rising at 18 h. 20 m. 38 s. from midnight; and consequently culminating very nearly at midnight; the semidiurnal arc of this star, or the time taken up by it, between rising and coming to the meridian, not being much more than five hours of mean time<sup>g</sup>. The case would not be materially different B. C. 848. It is evident at least, that this ninth mansion, whether dated from Nov. 22 to Dec. 5, or from Nov. 21 to Dec. 4, must have been that in which Sirius was known to exhibit the phenomenon of culminating at midnight; and that is sufficient to explain its name.

xx Mansion. Coptic, Nimamreh: Arabic, Al Naâim, or Al Naâm<sup>h</sup>. The Arabians assigned to this mansion eight stars; *four* of which they called Min al Naâim al Wârida; i. e. E pecoribus adeuntibus; as if from the resort of the flocks to the wells to drink: and the other four Min al Naâim al Sâdira; i. e. E pecoribus redeuntibus: as if from the flocks returning from drinking. And they compare the shape of all the eight to that of a chair, made with a curve or bend, *solum incurvum*. In Ulugh Beigh<sup>i</sup>, 1, 2, and 6, 7, and 20, 21 Sagittarii are designated by these names.

21 Sagittarii, τ Sagittarii.

A. D.	..	Long.	S.	°	'	"	Lat.	°	'	S.
1437	..		9	6	31	0	5	0		
					5	4			19	
1802	..		9	11	35	19				
1802	Long. of mansion, xix type i }	9 s. 12° 9' 56".543								
	xx = iii }									

Both this star consequently, and 20 Sagittarii (another of Al Naâim al Sâdira) ψ Sagittarii Bayeri, the longitude of which, reduced to A. D. 1802 from Ulugh Beigh, is 9 s. 14° 5' 19", and its latitude, 2° 18' S, might have been assigned to this mansion from the first.

The Coptic name of this mansion is rendered by Kircher Gratiae et Jucunditatis; and the Arabic name appears to carry with it the idea of comfort, pleasantness, and enjoyment too<sup>k</sup>.

<sup>f</sup> Traité, iv. § 440. p. 639.

<sup>g</sup> See Tables and Formulæ of the late F. Baily, esq., Table xxxiii.

<sup>h</sup> Hyde, Comm. p. 9. 53. Alfergan,

xi. 79.

<sup>i</sup> Tabulæ, 90-92.

<sup>k</sup> Bentley, Hindu Astronomy, App. Part ii. p. 238.



Kircher observes that it was so called: *Quod lætam produceret segetem*. And to judge from the Julian limits of the mansion, Dec. 4–17, that might well be the case with it in Egypt. By that time in the month of December, the spring had already begun in that country, and vegetation was far advanced. According to Prosper Alpinus<sup>1</sup>, the wheat in his time was usually in the ear by Christmas-day; and though Dec. 25 in his time would be as much after the solstitial day, as Dec. 16 or 17, B. C. 848, was before it, yet we cannot doubt that, for the climate of Egypt, there would be every appearance of spring between Dec. 4 and 17, even B. C. 848. The country would be green with herbage; and all the different seeds, sown subsequently to the retiring of the waters of the Nile, would be above ground, and fast advancing to maturity.

xxi Mansion. Coptic, Polis (Πόλις): Arabic, Al Belda<sup>m</sup>. This mansion is not noticed in Ulugh Beigh; the reason of which appears to be that, according to some of the Arabians, it consisted of a part of the heavens, destitute of stars: lying between the preceding mansion, Al Naâim, and the next, Sa'd al Dâbih. Alfergan so describes it<sup>n</sup>: *Spatium cœli parvum quod succedit Naomis; stellis vacuum*. Ulugh Beigh must have considered it a vacant mansion too; though Turg-jemân, quoted by Hyde<sup>n</sup>, designates it as characterised by six stars of Sagittarius: *In quibus sol commorari solet die totius anni brevissima*.

The longitude of mansion xx in our own type of A. D. 1802 is  $295^{\circ} 1' 22''$ .257: and in that longitude, (as any one may see from the globe,) there are actually no stars visible in any part of the zodiac, north or south of the ecliptic, until you come to those which stand in  $1^{\circ}$  or  $2^{\circ}$  of Aquarius, and are the first of the constellation of Capricorn. The last stars enumerated by Ulugh Beigh in Sagittarius, are 28–29, 30, 31, of his own list,  $\omega$ ,  $a$ ,  $b$ ,  $c$  of Sagittarius in Bayer, according to Flamsteed. The longitude of 31 Sagittarii, reduced to A. D. 1802, is 9 s.  $24^{\circ} 11' 19''$ , the Lat.  $7^{\circ} 0' S$ . It is consequently the most easternly of the stars at the root of the tail of the Horse. The next star which he describes is 1 Ca-

<sup>1</sup> Res Ægyptiacæ i. cap. i. p. 7.

<sup>m</sup> Hyde, Comm. 9.

<sup>n</sup> xx. 79. Cf. also Phiruzabadius, apud Hyde, Comm. p. 9.

pricorni, 2 a Capricorni, which stood in A. D. 1802 in 10 s. 1° 35' 19". It is clear then that between the last star of Sagittarius in 9s. 24° 11' 19", and the first of Capricorn in 10 s. 1° 35' 19", there were no stars discoverable either in the north or in the south of the zodiac; i. e. just where our 20th mansion began; and for five or six degrees afterwards. And this, it must be admitted, is a very critical confirmation of the original derivation of the Arabian scheme of the mansions from the Egyptian, such as we exhibit in our own types. The author, denominated by Kircher Camusi (auctor<sup>o</sup>,) (Aben Ragel, as Hyde appears to have understood him to mean<sup>p</sup>,) describes Al-Beldeh as, Statio Lunæ in dodecatemorio Capricorni inter Elnaim et Meschadt (Mas'ad): and in the time of Aben Ragel this mansion did partly belong to Capricorn; ending in the seventh degree of Capricorn.

It is singular that the Coptic name of this mansion should be only the Greek Πόλις, and the Arabic one of Al Belda should mean Πόλις also. This must imply that either the Coptic name was borrowed from the Arabic, or the Arabic one was borrowed from the Coptic. In the present instance, we are inclined to be of opinion that the former was the case. The Julian dates of this mansion were Dec. 17–30. The date of the Nativity, Dec. 25, fell within it. When the Egyptians embraced Christianity, it is exceedingly probable that they would give a Christian name to this mansion in particular, taken from that coincidence; and we conjecture that this name was that of Gratia, which Kircher's version of the Coptic makes part of the name of the preceding mansion, Gratia et Jucunditatis. The xx mansion was probably called Statio Jucunditatis, for the reason assigned; and the xxi Statio Gratia. The Arabians might change the name of Gratia into that of city, or Belda, for reasons peculiar to themselves; or because the winter solstice took place in this mansion; and that change in the course of time might be reflected in the Coptic by Πόλις, for Gratia also.

xxii Mansion. Coptic, Upeutos: Arabic, Sa'd al Dâbih<sup>q</sup>. The stars of this mansion, in Ulugh Beigh<sup>r</sup>, are 1 and 3 Capricorni.

<sup>o</sup> ii. 566.<sup>p</sup> Comment. p. 9.<sup>q</sup> Hyde, Comm. 9. 54. Alfergan, xx. 79.<sup>r</sup> Tabulæ, p. 94.

1 *Capricorni*, 2 *a Capricorni*.

A. D.	Long.	<sup>s.</sup> °	<sup>'</sup> 31	<sup>''</sup> 0	Lat.	<sup>'</sup> 42	N.
1437	..	9	26	31	6	42	
			5	4	19		
1802	..	10	1	35	19		
1802	Long. of mansion xxi, type i }						
	— xxii = iii }						
		10s. 7° 52' 47".971					

The meaning of the Coptic name of this mansion, according to Kircher, is *Brachium Sacrificii*. The Arabic too denotes *Fortuna Mactantis*. *Alfergan* 9: *Sado-ddābih duæ stellæ exiguæ*; quarum borealiori prope adstat stella obscurior quam Arabes ovem nuncupant: atque hinc illud nomen; i. e. of the mansion: *Fortuna decollantis*, as Hyde expresses it 9, after *Alfergan*. *Turgjemân* too 8: *Fortuna mactantis sunt duæ stellæ lucidiores, in sinistro cornu Capricorni: quarum uni in proximo adjacet tertia stella exigua\* velut mactanda ovis: quo et nomine appellatur.*

This mansion then derived its name in the Arabic from three stars, in a right line or nearly so, (at present in the 1° or 2° of Capricorn,) two of which were thought to be in the act of sacrificing the third. Now this is so far-fetched an idea, so impossible to have been suggested by the appearance of the heavens themselves, and so unlikely to have occurred even to the imaginations of the Arabians, inventive as they always have been, and prone to such conceptions as these, unless it had been suggested by something else, that we may take it for granted the first idea of it must have been derived from the Coptic name of the mansion. It has already been shewn<sup>t</sup> that the mansions in this quarter of the ecliptic, in the original delineation of the Egyptians, did all by their names imply some connection with the act which gave name to the sign of *Aquarius*; and with the mode of representing that sign: viz. by an arm and a sacrifice, the sacrifice of *Horus* to the sun. The idea of a sacrifice having been once suggested to the Arabians by the names of three or four of the mansions

This star is 2 *Capricorni* in *Ulugh Beigh*; *a Capricorni*, only 18' east of 1 *Capricorni*, and 15' more to the south in point of latitude.

9 Hyde, *Comm.* 9. 54. *Alfergan*, xx. p. 24.

79. <sup>t</sup> *Supra*, ch. vi. sect. xii. p. 400 sqq.

<sup>s</sup> Beck, *Ephemerides*, ii. *Cap.* v. § 7.

in this quarter, the first of which was this; they would soon find out in some one or other of the stars, allotted to these mansions, an emblem of the victim which must be supposed to be the subject of that sacrifice; and in others, the types and representations of those who must be supposed to be offering it.

The ist mansion in such a scheme as this being laid down in  $0^{\circ} 0' 0''$ , the viiith must fall in  $90^{\circ}$ : the xvth in  $180^{\circ}$ : and the xxiid in  $270^{\circ}$ . The xxist mansion of type i answered to the xxiid of type iii, B. C. 848: and the longitude of this xxiid mansion, B. C. 848, was  $271^{\circ} 2' 13''.757$ ; that is, only  $1^{\circ} 2' 13''.757$  more than  $270^{\circ}$ . The proper representative therefore of the winter solstice in type iii, B. C. 848, was this xxiid mansion: and we see that its Julian date at that time was Dec. 31; and Dec. 30 B. C. 848 answered as truly to the date of the mean winter solstice, as March 31 to that of the mean vernal equinox\*.

xxiii Mansion. Coptic, Upeuritos: Arabic, Sa'd al Búla<sup>u</sup>: or in the dual number Al Bulaán<sup>w</sup>. The stars of this mansion, in Ulugh Beigh<sup>w</sup>, are 6, 7 Aquarii<sup>x</sup>.

*6 Aquarii, v Aquarii.*

A.D.		S.				Lat.	
1437	..	Long.	10	6	7	6	Lat. 7 6 N.
					5	4	19
1802	..	—	10	11	11	19	
1802	Long. of Mansion xxii	Type i	} 10 s. 20° 44' 13''.685				
	—	xxiii					

Kircher explains the Coptic name in this instance by Beatitudo, sive Brachium Absorptum. If the idea of beatitudo actually entered into this Coptic name, it will account for the Arabic Sa'd, (which means Beatitudo also; at least in the sense of Fortuna, Good Fortune,) part of the name given to each of these four mansions. Al Búla, attached to it also in this instance, means Deglutientis; and that too might be sug-

\* The date of the mean vernal equinox, B. C. 848, for the meridian of our tables, was March 31, 12 h. 59 m. 2 s. 24 th.; whence it is easy to calculate from the table of ingresses among the supplementary tables, that the mean winter solstice, for the same meridian, would bear date Dec. 30, 11 h. 20 m. 40 s. 12 th.; and only 15 m. 44 s. earlier for that of Heliopolis or of Memphis: i. e. Dec. 30 about 11 A. M. exactly.

<sup>u</sup> Hyde, Comm. 10. Alfergan, xxii. 79.

<sup>w</sup> Ibid. 55.

<sup>x</sup> Tabulæ, 98.



gested by the Coptic Absorptum. Phiruzabadius, quoted by Hyde<sup>y</sup>: Búla' constat duabus stellis cursu æqualibus: earum altera obscura est et altera lucida, quæ nominatur deglutiens, quasi absorbeat alteram: and this too is so improbable an idea that it never could have been imagined until it was suggested by something else. Phiruzabadius adds, Oritur (sc. Búla') una nocte reliqua, (i. e. *penultima*,) de Canûn posteriori; i. e. January 30: and that is nearly the date of our xxiii mansion, in type iv. Jan. 28.

xxiv Mansion. Coptic, Upeuineutes: Arabic, Sa'd al Süûd<sup>z</sup>: the former, according to Kircher, Beatitudo Beatitudinum; the latter, Fortuna Fortunarum: on which the same remark may be made as before, that the Arabic is only a version of the Egyptian, if the Egyptian is not so of the Arabic. The stars of this mansion, in Ulugh Beigh<sup>a</sup>, are 4, 5 Aquarii.

5 Aquarii<sup>b</sup>, ξ Aquarii.

A. D.	..	Long.	<sup>s.</sup> 10° 16' 40" 0"	Lat.	6° 45' N.
1437	..		5 4 19		
1802	..	—	10 21 4 19		
1802	Long. of Mansion xxiii	Type i	} 11 s. 3° 35' 39".400		
	— xxiv	— iii			

xxv Mansion. Coptic, Upeutherian: Arabic, Sa'd al Ach-biya<sup>c</sup>. The Coptic name in this instance is rendered by Kircher, Brachium Absconditum. The Arabic means Fortuna Tentoriorum: which is explained by the fact that of the four stars, which belonged to this mansion, three were disposed in the form of a triangle (that is, a tent,) inclosing the fourth. Alfergan<sup>c</sup>: Sadolachbia: tres stellæ referentes figuram trianguli, in quarum medio consistit stella quarta. They are 9, 10, 11 Aquarii in Ulugh Beigh<sup>c</sup>.

11 Aquarii, ζ Aquarii.

A. D.	..	Long.	<sup>s.</sup> 11° 1' 7" 0"	Lat.	8° 48' N.
1437	..		5 4 19		
1802	..	—	11 6 11 19		
1802	Long. of Mansion xxiv	Type i	} 11 s. 16° 27' 5".114		
	— xxv	— iii			

<sup>y</sup> Comm. p. 55.

<sup>z</sup> Hyde, 10. 55. Alfergan, xx. 79.

<sup>a</sup> Hyde, 55.

<sup>b</sup> Tabulæ, 98.

<sup>c</sup> Hyde, Comm. p. 10, 55. Alfergan, xx. 79. Hyde, Tabulæ, 98.

This mansion is the last of those which bore the name of Brachium in the Coptic: and there seems to have been an allusion to that circumstance, and to the place of this mansion in the order of a series so designated in common, in the epithet *absconditum* applied to it. We observe that its date in type iii, of B. C. 848, is Feb. 8; three days later than the date of the sacrifice of Horus, Feb. 5. These mansions, so characterized by this common appendage of the arm, the xxiid inclusive to the xxvth inclusive, (four in all,) extended in this type from December 31—Feb. 21, a period of 52 days; the first of these terms being the day after the winter solstice in the sphere of Mazzaroth (Dec. 30), adapted to the epoch of B. C. 848, the latter the first day of Icthyon in that sphere. It is very possible that there were stated ceremonies in the course of these 52 days, four times repeated, once in each of these four mansions; the nature and dates of which being known would probably have explained the name given to these mansions respectively, and why it was connected with an *arm*, in each instance. It is evident that the stated date of the sacrifice to the sun, on the 15th of Aquarius or Hydron in the original scheme of the calendar of Mazzaroth, Feb. 5—would fall in the third of these mansions: and that being probably the most important of all these ceremonies, and the one on which most might be supposed to depend, this coincidence may serve to explain the peculiar emphasis and significance of the name of this mansion in particular, in comparison of those of the rest, Beatitude Beatitudinum.

xxvi Mansion. Coptic, Artulos: Arabic, Al Phergh al Mukdim, or Mukâddem<sup>d</sup>. The stars of this mansion in Ulugh Beighe<sup>e</sup> are 3, 4 Equi or Pegasi.

3 *Equi Maj.*, β *Pegasi*.

A. D.		S.				
1437	..	Long.	11	21	37	0 Lat. 30 51 N.
				5	4	19
1802	..	—	11	26	41	19
1802	Long. of Mansion xxv	Type i	} 118. 29° 18' 30".828			
	—	xxvi — iii				

xxvii Mansion. Coptic, Artulosia: Arabic, Al Phergh al

<sup>d</sup> Hyde, Comm. 10. 34. Alfergan, xx. 79.

<sup>e</sup> Tabulæ, p. 52.

Múchir, or Al Múaccher<sup>f</sup>. These are 1, 2 Equi Majoris in Ulugh Beigh<sup>g</sup>.

1 *Equi Majoris*  $\gamma$ ,  $\delta$  *Pegasi*.

A. D.	Long.	<sup>s.</sup> °	6	28	00	Lat.	25	21	N.
1437	..	o	5	4	19				
1802	..	—	o	11	32	19			
1802	Long. of Mansion xxvi	Type i	} os. 12° 9' 56".543						
	—	xxvii							
		—	iii						

In the first of these instances the Arabic name denotes Effusionis seu deplendi locus anterior: Locus effusionis situlæ anterior: in the second, Locus posterior<sup>f</sup>. Phergh is explained to mean Locus unde effunditur aqua inter utrasque ansas situlæ sive urcei coriacei<sup>h</sup>: the spout of a water-jug or pitcher; the bung-hole of a cask; the neck or orifice of a skin or a bladder: any thing in short from which water or any kind of fluid may flow. Hyde however observes<sup>h</sup>, His nominibus non designatur urna Aquarii; sed inter antiqua ab Arabibus imposita nomina accensenda sunt.

With regard to the Coptic names; Artulos is rendered by Kircher Statio Prioris Germinationis, Artulosia by Posterior Germinatio: and the distinction of Prior and Posterior of some kind most probably entered these Coptic names from the first, to account for the similar distinction which appears in the Arabian also. But with regard to the idea of Germination, we know not whether it is truly involved in the Coptic Artulos and Artulosia, or not: but we conclude that it is. To judge from the longitude of these two mansions, and from their position relatively to the two Pisces of the zodiac, the Piscis Australis and the Piscis Borealis respectively; we should be entirely of opinion that the names imposed on these mansions originally by the Egyptians had an exclusive reference to these two Pisces. These mansions are so disposed, that one of them (the xxv) would graduate directly from the last star in the tail of the southern fish, 8 Piscium of Ulugh Beigh<sup>i</sup>,  $\omega$  Piscium of Bayer; and the other (the xxvi) would extend to one of the last stars in the tail of the northern fish, 22 Piscium of Ulugh Beigh,  $\eta$  Piscium of Bayer<sup>ii</sup>; the

<sup>f</sup> Hyde, Comm. 10, 34. Alfergan,

<sup>h</sup> Comm. 34.

xx. 79.

<sup>i</sup> Tabulæ, 104.

<sup>g</sup> Tabulæ, 52.

<sup>ii</sup> Ibid. 106.

middle one of three which lie in the same straight line, 21, 22, 23 of Ulugh Beigh,  $\pi \eta \rho$  of Bayer: as any one may see by comparing the longitudes of these stars on the globe with those of these two mansions, in the type of 1802.

In the cosmogony of the Egyptians, the Fishes of the zodiac were the types of production. They represented the element of water, out of which every thing living, both vegetable and animal, was to be ultimately derived; and they had a still more direct connection with the origin of the two systems of being, the antediluvian and the postdiluvian, in particular. As the types of production in this sense, they might give corresponding names to each of the mansions with which they were so closely associated; and which lie in fact almost exactly within the limits of the 24 or 25 degrees of the sphere comprehended between them; names into which the idea of germination might possibly enter, or might easily be supposed to do, in the Coptic itself. The *prior* germination then, in this sense, would point to the first origin and development of being from water, at the Mosaic creation; the *posterior* to the second, out of the same element, after the flood.

We think this explanation much to be preferred to any which should attempt to account for such names, and for the idea at first sight implied in them, by supposing the mansions, which bore such names, to have coincided with that season of the natural year which is characterised by the symptoms of the early spring. Their dates indeed extended from February 20—March 18: which in other climates of the world might possibly have comprised the natural period of the early spring. But for the climate of Egypt these Julian terms would be much too late for the early spring. The first appearance of spring in that country, as we have seen, is more properly in November.

xxviii Mansion. Coptic, Kuton: Arabic, Al Rishâ<sup>k</sup>, or Betn al Hût; which last words are explained to mean Venter Piscis. The star which characterises this mansion, in Ulugh Beigh, is 12 Andromedæ; the constellation designated by him as that of the Mulier Catenata<sup>1</sup>.

<sup>k</sup> Hyde, Comm. 10. 35. Alfergan, xx. 79.

<sup>1</sup> Hyde, Comm. 35. Tabulæ, 56.



12 <i>Andromedæ</i> , $\beta$ <i>Andromedæ</i> .							
A. D.		S.	°	'	"	Lat.	°
1437	Long.	0	23	13	0	25	36 N.
			5	4	19		
1802		0	28	17	19		
1802	Long. of Mans.	xxvii	Type i	} os. 25° 1' 22".257.			
	—	xxviii	—				
			iii				

This star indeed is not on the belly of the Fish, but on the mouth, and on the girdle or cincture of Andromeda itself. The longitude however of the mansion to which it belonged is clearly that of our xxviith of type i, our xxviiiith of type iii, continued to A. D. 1802: so that, having set out with this comparison of Egyptian and of Arabian mansions, from mansion i in each, in a state of coincidence one with the other, we have come round to the last in each, in a state of coincidence also: which is sufficient to prove the identity of the two schemes throughout, notwithstanding the accidental distinctions which have been discovered between them, at intermediate points of each; and consequently the original derivation of the Arabian from the Egyptian.

The Coptic name of this mansion, Kuton, appears to be the same as the Greek  $\text{Κῆτος}$ : and that would identify the mansion with the Statio Piscis, and justify Kircher's version of the name, Statio Piscis, accordingly. The mansion before this terminated exactly at the last star on the tail of the Piscis Borealis: and that being situated in the middle of the tail, a line perpendicular to the ecliptic, and passing through this star, would bisect this fish, and yet pass directly between the two last mansions, confining alike on each. The north fish, on this principle, would be common to both the xxviith and the xxviiiith mansions: and it might give name to either, just as if it had belonged exclusively to it.

And yet there is reason to doubt whether the name of the xxviiiith mansion, (type iii,) the last of the revision of B. C. 848, was really that of the Fish. The meaning of the Arabic name of this mansion, Al Rishâ, is Funis, or Funiculus<sup>m</sup>: and that may lead to the discovery of its true name from the first.

There is in the zodiac a thread, or band, which passes from

<sup>m</sup> Hyde, Comm. 10.

one of these two Pisces to the other; and, from the purpose which it appears to serve of uniting them, is called σύνδεσμος ἰχθύων, or simply σύνδεσμος, λίνον, ἀρπεδόνη<sup>n</sup>. Its Arabian name is Cheit Kettâni, or Filum lineum. This being the case, we cannot confound the Arabic name of the last mansion, Al Rishâ, with this σύνδεσμος ἰχθύων: as any one may be further convinced, by turning to the longitudes and latitudes of the stars of this node or σύνδεσμος itself, in Ulugh Beigh°, (9—20 Piscium in his list,) and comparing them with those of Al Rishâ or Betn al Hût.

Hyginus has an observation, in reference to this Vinculum Piscium, which we consider it worth our while to quote: Pisces, says he, quibusdam stellis ut lineola ab Arietis pede primo conjunguntur . . . horum conjunctionem, quæ a pede Arietis primo notatur, Aratus Græce σύνδεσμον ὑπουράνιον<sup>q</sup> Cicero nodum cœlestem dicit . . . qui utrique volunt significare eum nodum non solum Piscium sed etiam totius sphaeræ esse. quo enim loco circulus ab Arietis pede μεσημβρινὸς dicitur (lege ducitur,) qui meridiem significet; et quo loco is circulus μεσημβρινὸς conjungitur et transit æquinoctialem circulum, in ipsa conjunctione circulorum nodus Piscium significatur: quare eum non Piscium sed etiam cœlestium nodum appellaverunt.

Now the fact is that, if both the constellations and the mansions, such as we have described each of them, are supposed to have been finally laid down on the sphere in B. C. 848, then the two first stars of the constellation Aries, γ and β Arietis, being brought to the meridian in 353° of the ecliptic, (their place B. C. 848,) in the manner implied in the above passage; a line passing critically between the xxviii<sup>th</sup> and the xxviii<sup>th</sup> mansions of type iii, that is, drawn just from the end of 348°, and produced to the intersection of the me-

<sup>n</sup> Hyde, Comm. 56.    ° Tabulæ, 104—106.    p Astronom. Poet. lib. iii. xxix.

<sup>q</sup> Cf. Phænomena, 244, 245. Cicero, Aratea Fragmenta, 6—14:

Atque horum e caudis duplices velut ære catenæ,  
Discessuque diu versæ, per lumina serpunt,  
Atque una tandem in stella communiter hærent  
Quam veteres soliti cœlestem dicere nodum.

Cf. Germanici Cæs. Aratea Phænomena, 244: on which the Scholiast: Habent inter se (Pisces sc.) alligamentum luteum, continens usque ad priores

pedes Arietis. It seems this band was always represented on the spheres of old of a *saffron* colour.

ridian with the outermost line of the zodiac on the south, will meet it as nearly as possible in the place which must have been occupied B. C. 848 by  $\xi$  Piscium, the last of the three stars described by Ptolemy<sup>r</sup>, and by Ulugh Beigh too, (Piscium 16, 17, 18,  $\mu$   $\nu$   $\xi$  of Bayer,) as next to the *σύνδεσμος* or node of the Pisces itself: which star is situated at present in the extreme limit of the zodiac, in mean longitude  $24^{\circ}$  or  $25^{\circ}$ , south latitude  $8^{\circ}$ , just under the foot of the Ram; and B. C. 848 was  $36^{\circ} 49' 44''$  west of its place in 1802.

We are altogether of opinion that this is the most probable explanation of the name of Al Rishâ given to the xxviii<sup>th</sup> mansion of type iii; the coincidence thus pointed out of the intersection of a line so drawn, between the two last mansions and the meridian circle, passing through the first star of the constellation Aries and the first degree of the sphere of Mazzaroth. On this principle however, it is probable that the original name of this mansion, among the Egyptians, was something which meant the same thing as Al Rishâ, not as Kuton. On this principle too, it is easy to account for the introduction into the sphere of this asterism of the *σύνδεσμος* itself; and why as passing between the xxviii<sup>th</sup> and the xxviii<sup>th</sup> mansions, to both which the northern fish appertained alike, it should have come to be regarded as the *σύνδεσμος ἰχθύων*, or Bond of the fishes in particular, though it was in reality, (and as Aratus appears to have understood it,) the Band of the sphere; the connecting link, at least, and bond of union between the mansions and the signs in the sphere of Mazzaroth. We have seen also that there was actually a mansion in the Egyptian scheme, which went by the name of Connectens; the second, in the preceding enumeration, corresponding to the Arabic Al Sheratein of the original scheme, and the Al Botein of the third: yet why the name of Connectens should have been given to that mansion in particular did not appear. It is possible that this name in reality belonged more properly to the xxviii<sup>th</sup> mansion, as the true connecting mansion; in which case it would obviously mean the same thing as the Arabic Rishâ. It is not probable that the name of Pisces would be given both to

<sup>r</sup> Delambre, *Astronomie Ancienne*, ii. 276. Ulugh Beigh, *Tabulæ*, p. 106.

the xxviii<sup>th</sup> mansion and to the ist; as it must have been, if the true name of the former was always Kuton, and that of the latter was always Pikutorion. If the name of the iind mansion too was always Κῶλον or Κώλιον, we do not see how that could possibly come to mean Statio Connectens; though it might be mistaken for Κοιλία or Ventriculus, and so give occasion to the Arabic name of Al Botein.

We incline therefore to the conclusion that the true name of the xxviii<sup>th</sup> mansion (March 18–31) was Connectens, or ὁ σύνδεσμος; answering to Al Rishâ in the Arabic, and ultimately the original of that name: for the reason which we have just explained; viz. That this mansion was actually the connecting link of the mansions and of the constellations and signs, in the sphere of Mazzaroth, as divided out in certain proportions among them all; all being supposed to meet at last in the σύνδεσμος or node; the intersection of the line drawn through the first degree of the xxviii<sup>th</sup> mansion, with the meridian passing through the first degree of the sphere of Mazzaroth\*.

\* A work has been recently published (the first volume in 1845, the second in 1849) by a learned Frenchman, (a distinguished oriental scholar in particular,) Mons. Sédillot (the younger,) entitled “Matériaux pour servir à l’Histoire Comparée des Sciences Mathématiques chez les Grecs et les Orientaux;” which we had not an opportunity of consulting until after the completion of the preceding comparison of the Arabian scheme of the mansions with the Egyptian.

There is an account of the Arabian mansions in this work; containing not only their names and the explanation of their meaning in each instance, but also the dates of the rising and setting of each mansion respectively, and the natural characteristics of the season of the year with which those coincided; an account, translated from one of the MSS. in the National Library at Paris, (No. 898.)

The author of this account was the Persian astronomer commonly known by the name of Kaswini, from the city of Kasvin, or Casbin, of which he was a native. Casbin, according to D’Herbelot, was founded by Schabat, surnamed Dhulantaf, in the month of May, anno Alex. 466, A. D. 154; (though this date would correspond more properly to the 466<sup>th</sup> year of the Æra Græcorum, than of the Æra Seleucidarum;) and it was for a long time the capital city of the Persian empire. Some of the learned suppose it to have been the same as the Arsacia of the ancient Parthians. It was situated at least in Irak, a province of the ancient Parthia, the most mountainous division of that country; and it still exists, and according to the report of modern travellers, (adopted by the *Connaissance des Temps*),



its geographical position is defined by N. Lat.  $36^{\circ} 11'$ : and East L.  $47^{\circ} 13' = 3$  h. 8 m. 52 s. east of Paris, and consequently 57 m. 27 s. east of Jerusalem, 1 h. 13 m. 11 s. east of the ancient Heliopolis.

There can be little doubt that the author of this account was Kaswini of this city. He mentions Irak, in the course of the account, more than once, and in such a manner as to imply that he was writing the account there at the time. It is clear too that he supposes the mansions, which he was describing, to have been more properly Arabian (at least in their origin) than Persian. Now the proper name of this Kaswini, according to D'Herbelot, was Nagmeddin Ali Ben Amram; and he had the surname of Abul Hassan al Catéb. He was a scholar of Nassireddin al Thusi, one of the most celebrated of the Arabian astronomers, and the author of the *Ilekhanique* or *Imperial Tables*.

The first thing necessary, in order to make any use of his account, would be to know its date; but we do not find this specified by Mons. Sédillot; nor even the age of the author. If however he was a scholar of Nassireddin's, the age of Nassireddin is known. Nassireddin was born, according to D'Herbelot (after Abulfeda and others,) Hej. 597, A. D. 1200; and he died Hej. 672, A. D. 1273, or Hej. 687, A. D. 1288. The observatory at Meragah at least was founded by him, A. D. 1260<sup>a</sup>; and that may be assumed as most properly his age. And this being supposed of Nassireddin, the age of Kaswini may be assumed about the same time. The internal evidence of his account of the mansions agrees to this date; in particular the date which he assigns to the end of the natural year, the twentieth night before the end of Adar<sup>b</sup>; for this is a designation of Adar 12 in the Syrian, March 12 in the Julian, calendar; and A. D. 1260 the vernal equinox was actually falling between March 12 and 13, not only for the meridian of Jerusalem or of Heliopolis, but of Casbin also.

The most important parts of this account are the dates of the risings and settings of the mansions, which it specifies<sup>c</sup>. It does not appear that the learned translator thought it necessary to verify these dates, or to ascertain how far they were consistent with each other, or with the principles of the scheme of which they made a part. We shall endeavour to supply this omission; and in particular to recover if possible the genuine numbers of Kaswini, which are not uniformly represented in this account; though we do not attribute that to any fault of Mons. Sédillot, but simply to the MS. from which he translated these dates.

i. then; the number of the mansions recognised in this account is 28.  
ii. These 28 mansions, according to this account too<sup>d</sup>, were one thing as referred to the moon, and another as referred to the stars. As referred to the moon, they were simply a cycle of 28 days; as referred to the stars, they were the cycle of the natural solar, or rather of the Julian, year itself. It is observed at the end<sup>e</sup>, "The solar year of 365 days is thus divided into four parts, and each part into seven mansions of thirteen days each, which constitute the twenty-eight houses of the moon." Twenty-eight man-

<sup>a</sup> Sédillot, *Matériaux*, &c. p. xii.

<sup>d</sup> Ibid. p. 513.

<sup>b</sup> Ibid. p. 516.

<sup>c</sup> Ibid. p. 516-529.

<sup>e</sup> Ibid. p. 529.

sions of thirteen days each indeed do not make up 365 days; only 364. But it had been already specified in the proper place, that one mansion had 14 days. It follows that every mansion in this scheme, with that one exception, was of the same length. Each had 13 days; and all the 28 together had 365. If so, the dates of the mansions must have been agreeable to that distinction; and each must have stood 13 days higher or lower than the next to it.

That the precise length of the mansions was thus supposed to be *thirteen* days, appears further from the distinction of the ascending and of the descending mansions, recognised by Kaswini<sup>f</sup>; the latter of which he calls *Sakouth*, and the former *Thalouh*. The ascending mansion was that which was just appearing above the horizon, and the descending that which was just disappearing below it, at one and the same moment. Now this ascending and this descending process he tells us<sup>f</sup> was prolonged in each instance *thirteen* days; until every degree of the ascending mansion and the opposite degree of the descending one had both appeared and disappeared in this manner above and below the horizon respectively: and during these 13 days, he continues<sup>f</sup>, all the affections of the weather, such as rain or wind, heat or cold, were attributed to the descending mansion. It must be clear then that both the ascent of a particular mansion and the descent of the opposite mansion occupied 13 days, and 13 days exactly; and consequently that, if the numbers of Kaswini do not follow this rule in every instance, they cannot be genuine in every instance.

It has been sufficiently explained that by virtue of this peculiar division of the mansions, whether as adapted to the ecliptic or to the equator, there must be 180 degrees between opposite mansions; i. e. between any one mansion and the fifteenth in order from it; and that, when any one was rising, the opposite mansion must be setting, and *vice versa*. These distinctions are recognised in the present account. "Of the 28 mansions," it is observed<sup>g</sup>, "14 are always above the horizon, and 14 are always below it; and when any one of them is setting, the opposite one is rising at the same moment." It follows that the dates of the risings must stand at a determinate distance from those of the settings, and *vice versa*. If both are genuine, there ought to be 182 days' interval between them, and in one particular case 183 days. Kaswini has specified the dates of both: one of them is consequently a check on the other, and a test of the truth of the other. There ought to be 182 or 183 days between them in every instance; and if that is not the case, one or both of them must be in error; though even in that case, it is not probable that both should always be found to be in error at once.

In specifying these dates, Kaswini follows the Arabian rule of reckoning from the night, or of reckoning the day to the night; and not *vice versa*. Had the risings and settings in question been referred to evening or sunset, this rule would have been different from the Julian; but it appears that they are all referred to sunrise or morning, or rather to the break of day, to the first appearance of day light before sunrise, every morning.

<sup>f</sup> Matériaux, p. 514, 515.

<sup>g</sup> Ibid. p. 514.

The ascending mansion in each instance was that which was appearing in the horizon *at dawn*; the descending one was that which was just disappearing below it at the same moment<sup>h</sup>. The epoch of the ascent and of the descent then in each instance was the point of dawn; which as a general thing might be said to be an hour or 52 minutes before sunrise all round the year. And this being the case, there is no difference between this rule of reckoning by nights and the Julian one of reckoning by days. A given *night* of the month is a given *day* of the month; a given morning of the month at least. Kaswini himself in one instance (the date of the descent of the last mansion) expresses it both by the fifth night of Teschirin i<sup>i</sup>, according to the Arabian rule, and by the fifth of Teschirin i<sup>k</sup>, according to the Julian.

These observations having been premised, it is evident from them that if one only of these dates could be assumed as genuine, all the rest might be obtained from it, and with certainty too, simply by the application of one and the same rule of derivation throughout: and *that* also whether the assumed date were an ascending or a descending one. It is natural to take the dates first specified in the account itself, those of the first mansion. The ascending date of this mansion in the text of Mons. Sédillot's version<sup>l</sup> is the 16th night current of Nisan; the descending one is the 18th night current of Teschirin i. The former corresponds to April 16, the latter to October 18. Now these are not consistent. If the ascending date is right, the descending one is two days in excess; if the latter is correct, the former is two days in defect: the number of days from a given day in April to the same day in October being exactly 183.

The truth indeed is that the descending date in this instance is the genuine one; and therefore the ascending date is to be corrected in conformity to it, from Nisan or April 16 to Nisan or April 18. The cardinal date of the scheme then, that from which all the rest are ultimately derivable, was April 18; and the scheme itself, when it comes to be understood, it appears to us furnishes a critical proof of this fact.

In accommodating the mansions to the Julian year, which is sometimes 365 and sometimes 366 days in length, one mansion must have a day *extra* every year of the Julian cycle of leap-year, and another mansion every leap-year. Kaswini himself observes<sup>m</sup> that 14 days were allowed to one mansion, in order that the final disappearance of the 28th mansion might coincide with the end of one year, and the succession of mansions might begin again in the same way at the beginning of the next: and as the year which he means is the Julian year of Syria, it is clear that the mansions on this principle must have been supposed by him always to have contained the same number of days as this Julian year of Syria, 365 in the common years of its proper cycle of leap-year, 366 in the leap-years themselves. In this case, while some one mansion had an *extra* day every year, *secundum ordinem*, some other must have had an *extra* day every fourth year, *extra ordinem*. The question is, what mansions these would be.

<sup>h</sup> Matériaux, p. 514, 515.<sup>l</sup> Ibid. p. 516.<sup>i</sup> Ibid. p. 529.<sup>m</sup> Ibid. p. 515.<sup>k</sup> Ibid. p. 524.



In the scheme which we have just been considering, (the scheme which, as we have seen, is recognised by Ulugh Beigh, and which appears to us to have been the genuine scheme of the Arabian mansions properly so called,) these two mansions were the xivth, Simâk al A'zal, and the xxviii<sup>th</sup>, Al Rishâ. The former had the *extra* day in the common years of the cycle of leap-year, or rather every year; the latter in the leap-year, that is, every fourth year. We learn from this distinction that the mansions selected for the intercalary day in each of these instances were *opposite* mansions, i. e. fourteen mansions asunder one from the other respectively; and it seems only probable *a priori* that such would be the case.

We have learnt however from the preceding account of these mansions<sup>n</sup>, that in some schemes of the Arabians themselves the xth mansion, Al Gjeb'ha, had the *extra* day. And this, it seems, was the rule of Kaswini's scheme. Al-Djebbah in that too had 14 days<sup>o</sup>, and regularly so; i. e. in every year of the cycle alike. What mansion besides had 14 days (though only at stated times) is not specified in this account. But if Al-Djebbah the xth was intercalary in every year of the cycle alike, what could be intercalary in the leap-years of the cycle so properly as the xxivth, the opposite mansion? the Arabian name of which in this account of Kaswini's is Saad al Sooud<sup>p</sup>.

Now if the date of the ist mansion is Nisan 18, or April 18, that of the xth is necessarily Ab 13, or Aug. 13: and this being its ascending date, its descending date, (which is also the ascending date of its opposite mansion, the xxivth,) is Schébat 12. The Syrian Schébat corresponded to the Julian February, in every thing but the seat of the intercalary day in the leap-year; which in the Julian calendar follows the 28th of February, but in the Syrian came next to the 25th of Schébat. If then the xxivth mansion had 13 days in the common years of the cycle, and 14 in the leap-year, the first day of this mansion would be the same in every year of the cycle alike, Schébat 12; and in the leap-year the last day would always coincide with the intercalary day, Schébat 26.

That Al Gjeb'ha the xth mansion had 14 days in some schemes instead of the xivth, Simâk al A'zal, appeared from the testimony of Al-Jauharius<sup>n</sup>, an older writer than Kaswini by 300 years. This rule therefore could not have been introduced by Kaswini, or by the Persian astronomers of his time in contradistinction to the Arabian. We have probably pointed out the true explanation why 14 days were assigned to the xth mansion; in the coincidence between the last day of that mansion, August 7 or 8, and the Babylonian date of the *genitura mundi*; which might seem to have designated it as the epochal mansion. But there is no reason why the other part of the same rule, that which assigned 14 days to the opposite mansion, the xxivth also, might not have been introduced by the Persian astronomers; and with this view expressly of accommodating the cycle of the mansions to the cycle of leap year in the Syrian calendar. And this would appear to imply that the introduction of this second part of one and the same rule could not have been of long standing in the time of Kaswini, if he himself

<sup>n</sup> Supra, p. 333.

<sup>o</sup> Matériaux, p. 515.

<sup>p</sup> Ibid. p. 527.



was not the author of it. The coincidence on which it was founded could begin to hold good only when the epoch of the mansions was beginning to fall on April 18; for it depends entirely upon that; and that could neither always have been the case, nor always continue to be the case. It was the case however in Kaswini's time; and as his scheme of the mansions is adapted to this Syrian calendar exclusively, we consider it far from improbable that either he or Nassireddin his master made this change in the intercalary rule of the mansions, on purpose to accommodate them to the Syrian calendar.

It is most reasonable too to suppose that if an astronomer like Kaswini proposed a scheme of this kind, without any qualification, he proposed it as something perpetual, or at least for as long a time as under the circumstances of the case would be possible; that is, until the difference between the mean sidereal year and the mean Julian should accumulate to a day and a night complete; which would not be the case in less than 159 years. For this purpose however it was evidently necessary that the scheme should be adapted in the first instance to the first year of the Julian cycle of leap-year rather than to any other. We cannot say that Kaswini's scheme is professedly adapted to this hypothesis; but when his numbers come to be recovered it will be seen to be so virtually: nor have we perceived any thing in it which would prevent us from supposing it was actually so adapted to A. D. 1260 itself; a year which is consistent with his own and Nassireddin's age in other respects and with the date of the vernal equinox recognised by him; and was also the first year after leap-year both in the Syrian cycle of that kind and in the Julian.

We shall now proceed to lay the scheme itself before the reader, distinguishing by an asterisk those dates which we have seen no reason to alter; that the reader may perceive at one glance that these are at least as numerous as those which we have corrected: and it should be remembered that any one of the former class being admitted as genuine and authentic it ascertains and confirms all the rest.

*Lunar Mansions of Kaswini<sup>a</sup> with their Syrian and their Julian dates, adapted to A. D. 1260.*

Order.	Names.	Ascending dates.	Descending dates.
i	Les Schérathanes. (Les deux Marques) also Al Nathih (celui qui donne un coup de corne).	Nisan 18    April 18 . . . .	*Teschrin i. 18    Oct. 18
ii	Al-Bothaïn. Le petit Ventre, or Le Ventre du Bélier.	Aiar 1    May 1 . . . . .	*Teschrin i. 31    Oct. 31

<sup>a</sup> Sédillot, Matériaux &c. p. 515-529.

Order.	Names.	Ascending dates.	Descending dates.
iii	Al-Thoreïa. Les Pléiades. Al- so Al-Nedjm, The Constel- lation.	Aiar 14 May 14 . . . . .	*Teschrin ii. 13 Nov. 13
iv	Al-Débaran. (Le Suivant). Ta- bih al-Nedjm, Le Suivant d' Al-Nedjm.	Aiar 27 May 27 . . . . .	*Teschrin ii. 26 Nov. 26
v	Al-Hakaah. La tête d'al- Djouza (Ori- on). Hakaah, a circular mark on the upper part of an horse's chest.	*Haziran 9 June 9 . . . .	Canoun i. 9 Dec. 9.
vi	Al-Henaah.	*Haziran 22 June 22 . .	*Canoun i. 22 Dec. 22
vii	Al-Dziraa. Le Bras (con- tracté) du Lion.	Tamouz 5 July 5 . . . .	*Canoun ii. 4 Jan. 4
viii	Al-Netrah. Le Nez du Lion.	Tamouz 18 July 18. . . .	*Canoun ii. 17 Jan. 17
ix	Al-Tharf. Le Regard ou le côté du Lion.	Tamouz 31 July 31. . . .	Canoun ii. 30 Jan. 30
x	Al-Djebbah. Le Front du Lion.	Ab 13 August 13 . . . . 14 days.	*Schébat 12 Feb. 12 Leap-year, 14 days.
xi	Al-Zubrah. La Crinière du Lion.	Ab 27 August 27. . . . .	Schébat 25 Feb. 25
xii	Al-Sharfah. Mutatrix.	*Eiloul 9 Sept. 9. . . . .	Adar 10 March 10
xiii	Al-Aoua. Clamator.	*Eiloul 22 Sept. 22 . .	Adar 23 March 23
xiv	Al-Simakh. Le Lancier (dés- armé).	*Teschrin i. 5 Oct. 5 . .	Nisan 5 April 5
xv	Al-Ghafar. Le Voile.	*Teschrin i. 18 Oct. 18	Nisan 18 April 18
xvi	Al-Zubana. Les Serres (du Scorpion).	*Teschrin i. 31 Oct. 31	Aiar 1 May 1
xvii	Al-Iklil. La Couronne, la tête du Scor- pion.	*Teschrin ii. 13 Nov. 13	Aiar 14 May 14

Order.	Names.	Ascending dates.	Descending dates.
xviii	Al-Calb. Le Cœur (du Scorpion).	*Teschrin ii. 26 Nov. 26	Aiar 27 May 27
xix	Al-Schaulah. Le Dard (du Scor- pion).	*Canoun i. 9 Dec. 9 ..	*Haziran 9 June 9
xx	Al-Naa'im. Les Troupeaux.	*Canoun i. 22 Dec. 22	*Haziran 22 June 22
xxi	Al-Beldah. La Plaine.	*Canoun ii. 4 Jan. 4 ..	Tamouz 5 July 5
xxii	Saad al-Dzabih. Fortuna Mactan- tis.	*Canoun ii. 17 Jan. 17	Tamouz 18 July 18
xxiii	Saad-Bula. Fortuna Degluti- entis.	Canoun ii. 30 Jan. 30..	*Tamouz 31 July 31 In the text Ab 31
xxiv	Saad al-Sooud. Fortuna Fortu- narum.	*Schébat 12 Feb. 12 .. in leap-year 14 days.	Ab 13 August 13
xxv	Saad al-Akhbiah. La fortune des Tentes.	*Schébat 25 Feb. 25 ..	Ab 27 August 27
xxvi	Al-Ferg-al-awwal. Le premier Gou- leau (de l'Urne).	Adar 10 March 10 ....	*Eiloul 9 Sept. 9
xxvii	Al-Ferg-al-tsani. Le second Gou- leau.	Adar 23 March 23 ....	*Eiloul 22 Sept. 22
xxviii	Betn al-Haut. Le ventre du Pois- son. Al-Res- cha, le Fil.	Nisan 5 April 5 .....	*Teschrin i. 5. Oct. 5

It remains to be shewn, in what manner these dates are derivable from the original dates of the mansions. But it will be sufficient to point this out in one instance, the first of all, the epochal date, Nisan 18 or April 18; on which all the rest depend.

We observe then that, if this scheme was truly adapted to A. D. 1260, or to any year about that time, (the first in the cycle of leap-year,) it was little more than 500 years older than our type of A. D. 1802. In 500 years the sidereal precession on the mean Julian year amounts to 3 days, 4 h. 19 m. 44 sec. The date of Al Sheratân in our type of 1802, for the meridian of Heliopolis, is April 16 at 16 h. 53 m. 42 s. On this principle it would seem that all we had to do, to get the epoch of Kaswini's scheme from our own, was to subtract 3 d. 4 h. 19 m. 44 sec. from the epoch of A. D. 1802, the epoch of our xxviii<sup>th</sup> mansion at that time = the 1st mansion of the

type of B. C. 848; which would give it April 13 at 12 h. 33 m. 58 sec. for the meridian of Heliopolis, five days earlier than what appears to have been its true date, April 18.

Now this conclusion is not wrong in itself, notwithstanding its seeming inconsistency with the other. The reason is, that Kaswini's scheme begins in the 6th degree of ours. It was perfectly indifferent to a scheme like his, and to the fact of its derivation from the Egyptian, in what relation it stood to the latter, provided it was always in the same; i. e. whether it set out from the first degree of the Egyptian or from any other. Assuming therefore that the true year to which it was adapted was A. D. 1260; let us first of all ascertain the amount of the sidereal precession on the Julian year, from B. C. 1847 to A. D. 1260; i. e. in 3106 years

i. 3000 mean Julian years	..	..	=	1,095,750	d.	h.	0
100	..	..	=	36,525			0
6	..	..	=	2,191			12
3106	..	..	=	1,134,466			12
Add from the last leap-year, B. C. 1849			=				12 hours

Sum of actual Julian time, B.C. 1847 to A.D. 1260					1,134,467	0			
						<sup>d.</sup>	<sup>h.</sup>	<sup>m.</sup>	<sup>s.</sup>
ii.	3000	mean	sidereal	years	..	..	=	1,095,769	1 58 22.363
	100	..	..	..	..		=	36,525	15 15 56.745
	6	..	..	..	..		=	2,191	12 54 57.405
	<u>3106</u>	..	..	..	..		=	1,134,486	6 9 16.513
		Subtract	..	..	..			1,134,467	

Excess of mean sidereal over actual Julian time	d.	h.	m.	s.
from B. C. 1847 to A. D. 1260	19	6	9	16.513

This excess, under the circumstances of the case, and for the reason explained elsewhere<sup>s</sup>, will require to be diminished *two* days; so that its true amount from B. C. 1847 to A. D. 1260 will be 17 d. 6 h. 9 m. 16 s. 513.

Now if the sun was in conjunction with the first mansion on April 8 at 12 h. 32 m. 8 s. 8, B. C. 1847 for the meridian of Heliopolis, we may assume that it must have been in conjunction with the xxviii<sup>th</sup> (i. e. it must have been in the first degree of the xxviii<sup>th</sup>) according to the cyclical rule of the mansions, March 26 at 12 h. 32 m. 8 s. 8. We have therefore B. C. 1847, for the meridian in question, the

sun in the first degree of mansion xxviii	h.	m.	s.
March 26	12	32	8.8
Precession, 3106 years	..	..	17 6 9 16.5
A. D. 1260 the sun in the first degree of mansion			
xxviii	April 12	18	41 25.3

The true sidereal epoch of this mansion then for its own meridian A. D. 1260 would be April 12 at 18 hours: and if the sun was on the first degree of this mansion in that year April 12 at 18 hours, according to the cyclical rule of the mansions it would be on the sixth degree April 17 at



18 hours; and that degree would be rising with the sun some time in the morning of April 18.

Now it has been already shewn from Kaswini's own account that he reckoned the ascent and descent of each mansion from the moment of daybreak or dawn precisely. But it appears also that this moment coincided with that of the heliacal rising of certain stars which constituted the determining stars of the mansion. These stars in the first instance of all were those on the head of the Ram. He calls them himself the Horns of the Ram<sup>t</sup>; and he compares their position relatively to each other to that of three circles disposed in the form of a pyramid, two at the base and one at the apex. There can be no doubt that these three stars are  $\gamma$ ,  $\beta$ , and  $\alpha$ , Arietis; which answer in a general manner even to that description.

The latitude of the ancient Heliopolis, supposed to have been the same as that of the modern Cairo, was  $30^{\circ} 2' N.$ ; that of Casbin is  $36^{\circ} 11' N.$ : consequently  $6^{\circ} 9'$  greater than the former: and in the case of the heliacal rising of a given star, for each of those latitudes respectively, this would make a difference of five or six days. The date of the vernal equinox therefore, A. D. 1260, for the meridian of Casbin being March 13 at midnight; the sun's place by mean motion April 18 would be  $35^{\circ} 39' 12''$ : and it may be seen even from the celestial globe that while the sun would rise on that morning for the latitude of Casbin soon after 5,  $\alpha$  Arietis, the largest of the three stars on the head of the Ram, which determined the first mansion in Kaswini's scheme, would rise as nearly as possible at the dawn of day. The longitude of this star A. D. 1802, according to Ulugh Beigh, was  $35^{\circ} 47' 19''$ : and therefore A. D. 1260, 542 years before, it was  $28^{\circ} 15'$ . And it may be seen from the globe that when  $35^{\circ} 39' 12''$  was rising with the sun for the latitude of  $36^{\circ} 11' N.$  about 5.15. A. M. this star in  $28^{\circ} 15'$  east longitude and  $9^{\circ} 30' N.$  lat. would be rising about four A. M. one hour and fifteen minutes earlier. There can be no doubt then that it would be already visible above the horizon 52 minutes before sunrise on the morning of April 18; especially for so elevated a region as that of Irak, in which, according to Kaswini, even Soheil or Canopus might be descried rising heliacally every year August 27<sup>u</sup> or 28.

We shall conclude with some general observations on the details of this scheme of Kaswini's in other respects.

i. He observes of this first mansion Al Sheratein<sup>x</sup>, "when the sun enters this constellation the weather is temperate," (which describes the beginning of spring,) "and the night is equal to the day," (which describes the point of the vernal equinox itself.) "The sun," he continues, "attains to it on the 20th night before the end of Adar, and then the year is ended;" which also describes the point of the vernal ingress. The point of time so designated being Adar 12 or March 12, it appears to be hereby implied that the sun was in conjunction with the stars of this first mansion on Adar or March 12. But this is not necessarily the meaning of the observation. The sun and a given star may be said to be in conjunction when they rise together cosmically; that is, when both come to

<sup>t</sup> 515, 516.<sup>u</sup> 521, 522.<sup>x</sup> P. 516.

the horizon together; though in the strict astronomical sense of the phrase they are so only when they have the same longitude. In the case of stars which have considerable north or south latitude, (as these three stars  $\gamma$ ,  $\beta$ , and  $\alpha$  Arietis have,) this cosmical rising may take place several days before or after they and the sun have the same longitude. The most westerly of these stars is  $\gamma$  Arietis; and it is easy to see from the globe that  $\gamma$  Arietis would come to the horizon A. D. 1260, in  $22^\circ$  or  $23^\circ$  east longitude, and  $7^\circ 9'$  north lat. according to Flamsteed, along with  $\odot$ s.  $5^\circ$  or  $6^\circ$ : which is sufficient to justify the statement of Kaswini, that the sun attained to these stars, i. e. rose along with them, at the beginning of the new year.

Again, according to Ulugh Beigh<sup>x</sup>, Al Sheratein was rising on Nisan 27, A.D. 1419; and yet, A.D. 1260, according to Kaswini, on Nisan 18. We have seen however that this date in Ulugh Beigh was really that of the conjunction of the sun with Al-Botein, the second mansion both in his list and in Kaswini's: and his date being understood of the first degree of Al Botein, it will follow that Aiar or May the 2nd must have been that of the sixth. The date of Al Botein in Kaswini is Aiar or May 1; one day earlier than Ulugh Beigh's: and that is no more than ought to be the case; because the sidereal precession on the Julian year from the time of Kaswini to that of Ulugh Beigh had already accumulated to a day complete. In fact this statement of Ulugh Beigh's was referred to A. D. 1419; between which and A. D. 1260 the interval was 159 years; and in 159 years the precession accumulates to 24 h. 16 m. 21 seconds; that is, as nearly as possible to a day and a night complete. It appeared to be something remarkable that Ulugh Beigh's own tables should have been adapted to A. D. 1437, and yet this date have been referred to A. D. 1419: but that would be explained if Nassireddin's or Kaswini's scheme of the mansions was really laid down in A. D. 1260, just 159 years before A. D. 1419. It was singular too that this one date was specified by him in terms of the Syrian calendar: but so were the dates in this list of Kaswini's throughout.

iii. The mansions of the Arabians are alluded to in the Koran by name; and therefore they must have been older among them than the time of Mahomet. Kaswini observes<sup>y</sup> that 14 of these mansions went by the name of the Syrian mansions, and 14 by that of the Yemen mansions; the first of the former being Al Sheratein, the last Simâk al-a'ezal, the first of the latter being Al-Ghafar, the last al-Reschâ. That is, the Syrian mansions were strictly those of summer, from the vernal equinox to the autumnal; the Yemen ones were those of autumn and winter, from the autumnal equinox to the vernal. Now this division and this distinction of names are illustrated by the fact which is recorded in the Koran, and in the other Arabian writings; the institution of the caravans twice in the year, once in the summer to Syria and once in the autumn and winter to Yemen. These caravans naturally regulated their journey to Syria by the summer mansions, which were therefore called the Syrian; and their journey to Yemen by the mansions of the opposite half of the year, which

<sup>x</sup> Supra, p. 339 et sqq.

<sup>y</sup> p. 514, 523.

were therefore called the Yemen ones. Now Arabian tradition ascribed this institution to Hashem, an ancestor of Mahomet, prince of the tribe of Koreish in his day. The mansions therefore were older among the Arabians not only than Mahomet but than Hashem his ancestor, a much older person than he.

In fact, speaking of the xviii mansion, Al-Calb, the heart of the Scorpion, Kaswini observes<sup>z</sup>, "The Arabians pay great attention to its appearance, and do not like to begin a journey when the moon is approaching to Scorpio," that is to this mansion, the heart of the Scorpion. Now an anecdote is extant in Plutarch's life of Crassus, from which we learn that this prejudice was in existence as far back as the battle of Carrhæ, B.C. 53. We hope to shew the importance of these coincidences to the illustration of the Roman calendar of the time, and of its actual relation to the Julian; if we are permitted to lay our account of this calendar from first to last before the world.

iv. With regard to the natural characteristics of the different mansions, we have only to read Kaswini's account of them in each instance, and to compare it with the date of the mansion assigned in our list, to see that either of these things is the most consistent with the other imaginable. We shall not however enter on the particulars of such a comparison; though they are well qualified to confirm our dates. We will observe only that though Kaswini himself was a native of Irak, a province of the ancient Parthia, far removed from Egypt; yet we find allusions to the *Nile* and to the *inundation*, among these natural characteristics of the mansions, even in his account; which it would be very difficult to explain if the mansions had not passed to the Arabians from the Egyptians before they passed from the Arabians to the Persians; and both by the circumstance of their origin in Egypt, and by the application which had been made of them from the first in their own country, had not always been connected with the Nile.

Thus, in his account of the third mansion, (Al-Thoreïa or the Pleiads,) "À la fin," he observes<sup>a</sup>, "le Nil croit, le lait est abondant." Mons. Sédillot understands this (and correctly as it appears to us) of the descent of this mansion, 13 days after its ascent. Its limits were May 14 and May 27; and the latter was not many days earlier than the date of the summer solstice in Kaswini's time, June 13 or 14; before which the Nile did usually begin to rise: and it was still nearer to June 4, the stated date when that series of experiments, preliminary to the rise, of which we have given an account, began to be made.

Again, speaking of Al-Henaah, the vith mansion, "Son apparition," says he, "coïncide avec celle d'Orion, les grandes chaleurs finissent, on mesure les eaux, &c." The limits of this mansion were June 22 and July 5. The stated date of the termination of the hot winds in Egypt was June 26, as that of their commencement was May 17, the fourth day in the mansion Al-Thoreïa, in which mansion Kaswini places it. Al-Henaah at this time stood next to the original date of the cubit mansion in the

type of B. C. 848, and the traditionary date of the rise ever after, June 17. This specific remark, *on mesure les eaux*, in this mansion, connects it with both these things; and therefore with the Egyptian origin of the mansion itself.

Again, one of the characteristics of the xiith mansion, Al-Sharfah the changer, is this<sup>b</sup>, "*À son apparition le Nil commence à croître.*" Its limits were Eiloul 9 and Eiloul 22 (Sept. 9 and 22.) It is clear then that in this instance the text of Kaswini is in error; and that instead of *Le Nil commence à croître* we ought to read *Le Nil commence à décroître*. It would be absurd to talk of the beginning of the rise in September, which was already going on sensibly and rapidly before the end of June. But according to the tradition of antiquity the Nile began to subside every year at the autumnal equinox, as it began to rise at the summer solstice. A. D. 1260 the length of the spring and summer quarters was 186 days, 12 or 13 hours; and therefore the date of the autumnal equinox was September 15, the 7th day in the xiith mansion: so that the subsidence would actually begin in it.

It is observed indeed of the next mansion, Al-Aoua, the barker, that (in that) the night was equal to the day, (which describes the autumnal equinox,) and afterwards gradually became the greater of the two. Its date was Eiloul 22, Sept. 22—seven days later than the equinox. The observation may mean that the night first became sensibly greater than the day in this mansion. The 22d of Eiloul however would have designated the autumnal equinox itself in the sphere of Mazzaroth at this time; and it might be supposed the observation was so to be understood: for a similar observation occurs of Al Naaïm<sup>c</sup> the xxth mansion, the limits of which were Dec. 22 and Jan. 4; the former the Mazzaroth date of the winter solstice at this time: "Their appearance announces the beginning of winter, the nights and the days are equal" (unequal). The middle or depth of winter is intended; as appears from the description of the next mansion, Al-Beldah, Jan. 4, that water froze at its appearing; i. e. the frosty weather set in: yet with the arrival of the next to that, Jan. 17, the winter was over, the sap began to reascend in the trees; and with the next mansion, Jan. 30, the spring rains set in; and the next to that, Feb. 12, was the beginning of spring itself. It would be a curious coincidence to detect the Mazzaroth dates of B. C. 1847 in a scheme of the mansions no older than A. D. 1260.

<sup>b</sup> 522.<sup>c</sup> 525, 526.



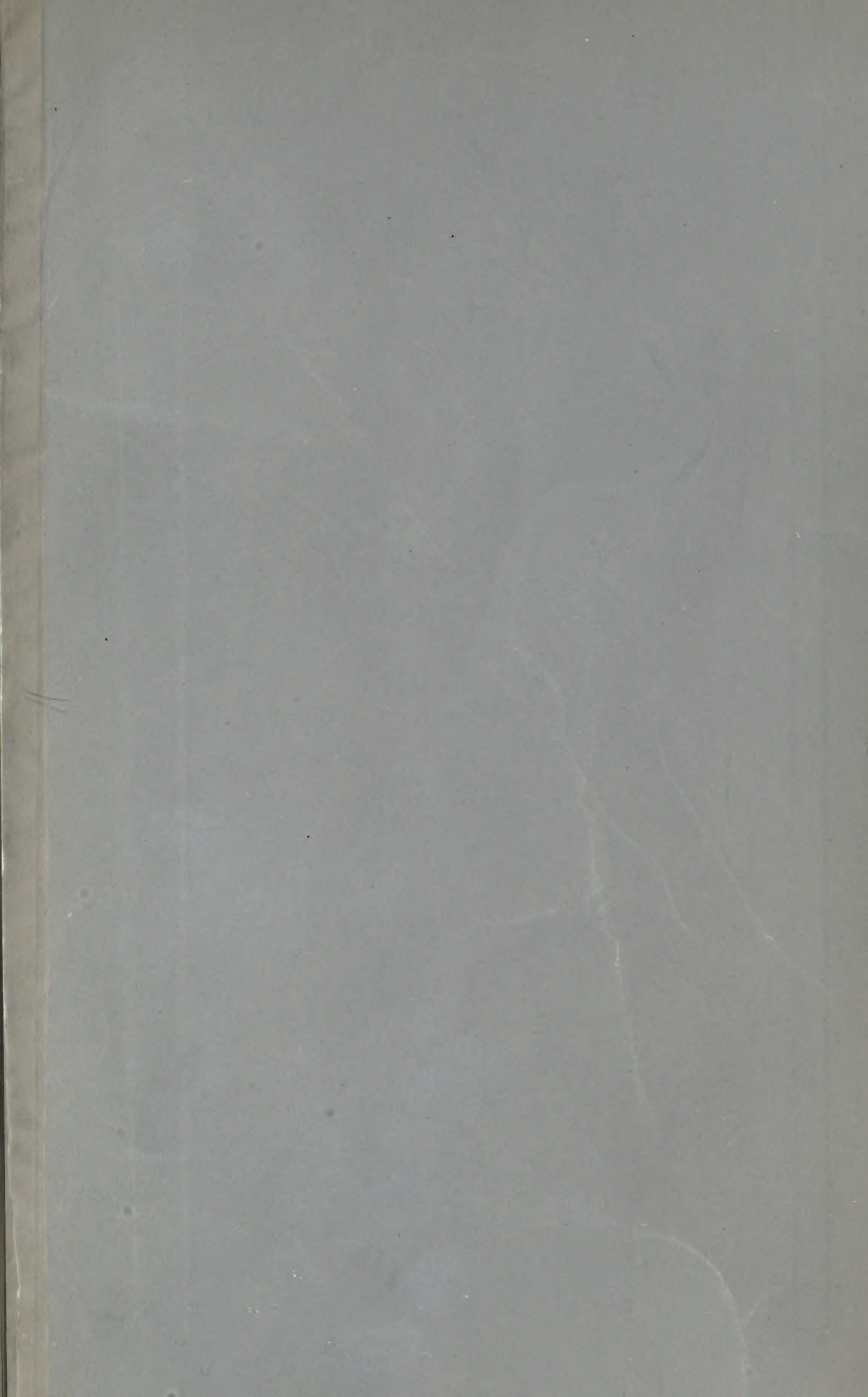














5532.

Author Creswell, Edward.

HChr

G8332f

Title Fasti temporis Catholici. Vol. 3.

DATE.

UNIVERSITY OF TORONTO  
LIBRARY

Do not  
remove  
the card  
from this  
Pocket.

Acme Library Card Pocket  
Under Pat. "Ref. Index File."  
Made by LIBRARY BUREAU

